THIRD SERIES VOL 64 NUMBER 11 SEPTEMBER 1957

66 PORTLAND PLACE LONDON W1 · TWO SHILLINGS AND SIXPENCE

The changing appearance of the Albert Embankment

THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

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Telegrams: RIBAZO WESDO LONDON

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EDITORIAL

Hon. Fellowship N.Z.I.A.

Mr. Kenneth M. B. Cross, President, and Mr. C. D. Spragg, C.B.E., Secretary, R.I.B.A., have been elected Honorary Fellows of the New Zealand Institute of Architects.

Mr. Ronald Muston [*A*], President of the N.Z.I.A., writes in his letter to the Secretary: 'It is with much pleasure that I am able to advise you that my Council have unanimously decided to elect both you and Kenneth Honorary Fellows of the New Zealand Institute of Architects. In doing so, it is felt that this distinction conferred on the President and Secretary is not only an indication of our regard for the mother organisation, but is an expression of our genuine appreciation of the services of the President and the Secretary.'

Landscape in Modern Life Exhibition

The first gesture of the Civic Trust has been to bring to this country an exhibition prepared by the International Federation of Landscape Architects.

The exhibition was collected in Zürich for the I.F.L.A. Congress of 1956, and since then it has been shown in Lisbon and Cologne. While in Lisbon it made such an impression on the Portuguese Government that they appointed landscape architects to advise their regional planning officers.

It is the largest and most comprehensive thing of its kind ever assembled, and its 250 panels carry photographs, plans and drawings of the work of 16 member countries of the I.F.L.A., including schemes for green areas in large cities, plans for national parks, treatment of industrial areas and designs for both municipal and private gardens.

After being shown at Birmingham Town Hall, the exhibition will be transferred to the Royal Festival Hall main foyer where it will be open to the public from 2–17 October at all times when the R.F.H. is in use, that is from 5.30 p.m. to 9.30 p.m. on weekdays and from 1.30 p.m. to 9.30 p.m. on Saturdays and Sundays.

Cover Pictures

The picture on the cover of the August JOURNAL was reproduced from a photograph taken by Berko, Aspen, Colorado, and came from the collection of Dr. Thomas Howarth [*F*].

This month's picture was taken specially for the JOURNAL to show 'le Nouveau Visage' of the Albert Embankment seen from across the Thames.

R.I.B.A. Joint Debate

The R.I.B.A. have, on the suggestion of their representatives on the Junior Liaison Committee of the Joint Advisory Committee on Training in the Building Industry, arranged a joint debate for junior architects, quantity surveyors and builders.

This will be held at the R.I.B.A. at 6.30 p.m. on Wednesday 23 October and the motion will be as follows:

'That the combination of professional and contracting services in the same organisation is *not* in the best interests of the building owner.'

The chair will be taken by Mr. D. B. Waterhouse [*A*], and the opening speakers will be Mr. G. Whitby, M.B.E. [*F*], Mr. J. E. Dennys [*A*], Mr. C. R. Wheeler, A.R.I.C.S., Mr. D. A. Cohen, A.R.I.C.S., Mr. P. E. Trench, O.B.E., T.D., B.Sc., M.I.O.B., and Mr. N. S. Farrow, M.B.E., M.I.O.B.

A buffet tea will be served at 5.45 p.m.

The R.I.B.A. has extended a cordial invitation to all members of the R.I.C.S. Junior Organisation (Quantity Surveyors Section) and of the I.O.B. Licentiate Discussion Club, and to members of other organisations, to attend and take part in the debate.

In view of the accommodation available and the fact that it is intended to be a 'junior' occasion this meeting will be open only to Associates and Students of the R.I.B.A.

Symposium Report: Family Life in High Density Housing

The Report of the above Symposium is now available, price 10*s.* (by post 10*s.* 6*d.*) and can be obtained from the Secretary, R.I.B.A. Order forms are enclosed with this issue.

The Report, which is attractively produced and fully illustrated contains the prepared papers of the main speakers together with their comments at the Symposium. Also included are the verbal contributions of several specialist speakers and a record of the discussions. The Symposium dealt in particular with the Design of Space about Buildings and the papers and discussions form a useful record of contemporary views on this important subject.

R.I.B.A. Canteen

There is a note on page 473 reminding members that the Canteen is at their service. Lunch is still served for 3*s.* and more patrons would be welcome.

Arrangements for the Session 1957–58

The new session opens on 29 October with the first science lecture which will be given by Mr. Donald E. E. Gibson, C.B.E., A.M.T.P.I. [*A*], County Architect, Nottinghamshire, on 'Problems of Building on Moving Ground'. A short note on this problem appeared in the June JOURNAL.

Mr. Gibson will be showing colour slides, and there is a great deal more possibly in the subject than a casual glance at the title might suggest.

On 5 November the President, R.I.B.A. will deliver his Inaugural Address, after which he will present the London Architecture Bronze Medal to Messrs. Chamberlin, Powell and Bon.

On 10 December Sir John Cockcroft, O.M., K.C.B., C.B.E., F.R.S., Ph.D., D.Sc., Director of the Atomic Energy Research Establishment, Harwell, will give a paper on 'Architectural and Building Requirements as Related to Atomic Energy'.

Coming to the New Year, on 7 January the Announcements of Award of Prizes will be followed by a discussion on 'Architecture and the other Arts', a perennial topic, but one which never loses its validity.

On 21 January Sir Herbert Manzoni, C.B.E., M.I.C.E., P.P.I.Mun.E., M.T.P.I., City Engineer and Surveyor and Planning Officer, Birmingham, will give the second science lecture on 'Public Parking Garages', a subject certain to provoke stimulating and controversial discussion.

On 4 February, the President gives his Address to Students, after which Mr. Peter F. Shepheard, B.Arch.(L'pool), A.M.T.P.I., F.I.L.A. [*A*] will discharge his duty as Critic. The Presentation of Prizes concludes the proceedings.

On 4 March Sir John Wolfenden, C.B.E., Vice-Chancellor of Reading University will give a paper on the 'Architect's Role in Society'. Members who heard Sir John speak at the Conference Dinner, or for that matter, anywhere else, will not wish to miss this occasion.

On 25 March the third science lecture which is on 'Domestic Building and Speculative Development' will be given by Mr. Eric Lyons [*F*] who is well qualified to deal with this subject.

The Presentation of the Royal Gold Medal will take place on 15 April and the Annual General Meeting on 6 May.

The British Architects' Conference, 1958, will be held at Newcastle from 14–17 May.

On 20 May the Hon. Humphrey Pakington, O.B.E., D.L. [*Retd. F*], will give a talk with the title 'The Passing Show'.

Commander Pakington first gave his talk to one of the Allied Societies, to whom it gave such pleasure and amusement that he has been asked for a repeat performance at headquarters. The talk is in the nature of a humorous and critical commentary on the design trends that have occurred during Commander Pakington's life-time. It should be a vintage evening.

On 17 June the results of the Council Elections will be announced, after which Mr. Eric L. Bird, M.B.E., M.C. [*A*], Technical Education Officer at the Building Centre will speak on 'The Problem of Technical Information'. Mr. Bird can be relied on to 'give us the score' in his usual forthright way, and judging by comments during the recent Annual Conference much will be expected of him.

The dates for symposia during the session have not yet been fixed and will be announced later.

The L.C.C.'s New Town

Mr. I. J. Hayward, Leader of the L.C.C., has announced that the Minister of Housing and Local Government has informed the Council that the Government has agreed in principle to the L.C.C. itself developing a New Town under the Housing Act, 1956, and the Town Development Act, 1952, provided that a site suitable from agricultural and other aspects can be found and that the timing of the scheme when formulated in detail can be approved in the light of the economic situation as it then exists. The Minister has asked to be consulted at an early stage about any site which appears to the Council to be prima facie suitable. In reply to earlier representations that special Government assistance might be needed to make capital available additional to that required for the Council's normal expenditure, the Minister says that the raising of capital would have to follow the rules in force at the time, although he has no reason to anticipate that this would involve the Council in any major difficulty.

A.B.S. Annual Ball

Application forms for tickets for the A.B.S. Ball on Wednesday, 11 December 1957, at Grosvenor House, are enclosed with this issue.

It is the aim of the Centenary Appeal Fund to collect sufficient money not only to build the homes for old people but to maintain them when they are occupied. This fund now stands at nearly £30,000 of which more than half has been raised by the seven Balls which have so far been held.

It is expected that, with the help of members, the Ball this year will be equally successful financially and that it will, as in previous years, provide a pleasant social occasion for members and their friends.

Many applications for tickets have already been received —indeed a number of 'regular attenders' asked for advance reservations at the 1956 Ball. In view of this and the fact that tickets this year will be strictly limited, to avoid overcrowding, applications from those anxious to attend should be made without delay.

Cambridge Opinion 4

The fourth number of CAMBRIDGE OPINION was a special architectural issue prepared with the help of the Cambridge Group for Architecture and Planning, described as 'a collection of people from the University and the Town who have been meeting regularly during the past year to discuss developments affecting the city'. The result is a most readably critical pamphlet with well-chosen illustrations.

Judgment is at times severe, but is of the kind that is badly wanted especially when it comes from those who have a close daily contact with the buildings they criticise, and are prepared to praise with discrimination in the cases thought worthy of it.

It is recommended reading for architects who may be concerned with work of any kind at universities.

The Franco-British Union of Architects

In the JOURNAL for July on page 386 it was reported that Mr. J. H. Peek [*L*] was present, with his wife, at the official dinner of the Franco-British Union of Architects at Les Milandes on 18 June. We regret that we were misinformed. Mr. Peek did not attend the dinner and he is not married.

American Office Practice

By Ely Jacques Kahn, F.A.I.A.

Read at the R.I.B.A. 4 June, Professor J. L. Martin, Vice-President, R.I.B.A. in the Chair

The Chairman: We are to have a lecture this evening which is not in our syllabus. This is due to the fact that we had not the slightest idea when the syllabus was drawn up that we should have an opportunity of hearing from Mr. Kahn. The fact that he is here—and by whose good offices he is here I do not know, but I rather suspect that Sir Howard Robertson and Mr. Rosenauer had something to do with it—makes us very anxious to hear him.

He has built up in New York an office where he has practised I think for the last 50 years. Therefore he has observed the development of the modern skyscraper in New York and all that that involves from the technical point of view. Because of this there could not be a more appropriate person to speak on this particular subject, and in welcoming him here, which I do on behalf of you all, I should like to say how delighted we are to hear him.

MR. E. J. KAHN

I am deeply honoured to address fellow architects and speak to them on that phase of our work that pertains to the production and execution of our buildings. In particular, I will talk of a rather unusual activity largely centred in New York City, and one that is peculiar to New York and certainly to our period.

Being involved at all, was a fortunate circumstance for those of us who grew up in the blossoming of a boom, that generated during the lush years of the 1920's and finally resulted, among other things not so pleasant, into the growth of the tall buildings. The wisdom of its very existence and its bearing on an overall city plan are matters that go far beyond the scope or purpose of my address to you. Actually, some of the picturesqueness of New York, perhaps most of it, comes from the fantastic massing of the towers that have sprung up in the city, with no set plan nor the slightest effort to follow any master composition. New York has grown violently and vigorously, and presumably it will continue to, as long as a demand exists and funds are available to meet the demand.

In all fairness, there is less confusion than might be indicated by my broad statement, for the towers are massed in specific areas, where certain activities are concentrated, and in spite of high land values, indicate reasonable returns on investment building. As to their beauty, there can be no logic in comparing them to the orderly regularity of a Paris boulevard or the charm of an English village. They are simply the result of powerful impulses and intense activity, regulated solely by the good taste and wisdom of the builders plus the ability of their architects. There is no question but that these towers have developed a quality of style and character that is inherent in designing the skin to screen a tall skeleton.

It is obvious that most of us would prefer to give our efforts to the fascinating area of design, and trust that our beloved ideas would be realized as painlessly as possible, which happy idea, unfortunately, is not being realistic. The architect concerns himself primarily with design, the responsibilities of the use of many materials, plus the countless technical problems that arise, and has the hope that he will produce safe and imaginative buildings. In this job, therefore, the designer must be aware that an interesting design is only a part of the procedure to produce a good building and the corresponding steps, coincident with design, become important.

A question may well arise as to how the architect is selected for the job. Are there competitions and what does happen before one embarks on the task of handling one of these big buildings? There have been very few contests in recent years beyond minor ones stimulated by material producers. The reason is fairly obvious, for a beginner would hardly be qualified to solve the manifold problems, nor would he be likely to command the necessary organisation with experience. There is to be sure the other note, the young designer may have talents and potentialities far beyond the so-called arrived practitioners. Actually, we have found that when a major situation develops, a small number of architectural firms are invited to meet with the client—explain what is presently being done, and whether a new project will fit into their programme. Fees are discussed, but the clients are fully aware of usual charges and there is relatively little sense of competition in this regard. It is not unusual for a client to arrange to pay a fee to the architect so that the programme can actually be formulated and following that step, proceed on a basis of actual costs, plus a fee, or more simply determine an actual amount computed on the presumed volume desired.

In a very practical world, justification for one architect or another to obtain these contracts develops rather quickly and it does not take too long a time for anyone to slip out of favour if for any reason he does not measure up to expectancy. Perhaps a more direct explanation of procedure may be of interest.

In my own case, I had the usual college training in New York and spent over five happy years at the École des Beaux Arts in Paris, where it was my privilege to know men from various lands, among them your own distinguished Sir Howard Robertson. When I returned home, I little suspected that I would be plunged into an activity far removed from what I had dreamed might be my career. Whether or not I was wise, the field of design and also the realm of the painter had interested me violently. However, at that moment occurred the surge to erect the skyscrapers that now dot the city; buildings that were, at first, hovering at the 20-storey mark, but later rose to 30, 40, 50 and then, as a climax, 100 levels.

In a very modest fashion, I became embroiled, and had the rare good fortune to become associated with a group of seasoned men of the old school, who knew how to proceed without fanfare and without fumbling.

Under their firm guidance, I very quickly learned the importance of team play, how many details arise in the study and evolution of an enterprise, the amount of permissible freedom and the rigid limitations as well. From this beginning I did absorb information, and when I speak to you today of American office practice, I can but emphasize the fact, that although the system that grew over the years, in our own office, may be peculiar to us, actually I doubt that there is anything of a particularly unusual character in the procedure as compared to that of other offices in my country.

Before entering into explanations of routine, you are aware, as we are, that a vital change is taking place before our eyes. Whatever you choose to label modern or contemporary architecture, buildings of our time reflect tendencies to toss away tradition, seek for simplicity, and above all, scorn ornament of any variety. Whether this is due to economics, lack of trained craftsmen, or a basic change in our philosophy, it is evident that we are dealing with, on one hand, far simpler masses; on the other, with many more complex mechanical features. Our revered predecessors never faced these difficulties at all, for there were no elevators, no plumbing, no electrical work and they could blissfully design beautiful edifices that were free of most of the agonies that beset us today. Actually, the working organs of a modern building are so complicated that they bear a serious influence on the design, to say nothing of the cost, of the finished product. When I reflect on our structures, I often think of the relationship of a building to the human body. If the organs of a young woman function well, her skin will probably be sweet and clear and have little need of powder and paint, so the building; the inner working must likewise serve the purpose excellently and evidence in its exterior a healthy reflection of good organism inside. *Ornament* will never compensate for a poorly planned structure.

Let us assume that we will concentrate, in discussing office regime, on the tall office building. At the outset, we have in New

York City, as in many of our cities, specific regulations that define use as to building type, area that can be covered and also height limits that vary with different zones. Beyond that, of course, is the Building Code that concerns itself with safety measures primarily. Where this set of rules becomes involved is in the matter of stairways and exits, and, particularly in a large building, the means of permitting many people to escape in any situation that might occur.

None of our regulations pay any attention to the serious question of basic planning—whether there are more buildings in one section than should be permitted, in view of transportation facilities, nor is there any municipal control whatsoever of design. The assumption, apparently, is that the existing laws are purely preventative, and as long as there is no danger, the individual is free to do whatever he wants.

Our premise, quite simply, must be to assume that a site is selected and our job is to handle phases of the work that come under our jurisdiction. Our first task is to check the zoning characteristics and produce the zoning envelope. This is the theoretical volume inside of which the structure is to fit. This is determined by area, then a coefficient of so many times the width of the street or avenue noted in the code. Many variations develop with which I will not bore you; the important one being that of the tower privilege. As long as one remains inside of the envelope, the blocks normally recede until it no longer is practical to go higher. The tower, however, covering not more than 25 per cent of the total area, can extend to any height and rises usually from the base blocks as the designer wishes. His restrictions in this event depend on the width of the adjoining thoroughfares.

The first rough sketches outline the position of the facilities—stairways, elevators and shafts for mechanical services. The number of elevators immediately becomes a crucial element, for it is an obvious ratio of how high to extend a tower as against the space remaining that can be used to advantage. There is also a pattern of increased cost mounting with the increased height; all this balanced by presumed higher rental values in the upper spaces. A rule of thumb calculation of 35,000 sq. ft. of floor area per car gives a clue to the number required. Taking one building under study now as an example, we have assumed requirement of a million sq. ft. of useable space. Twenty-seven cars, exclusive of service or night cars, would be divided into a series of banks of elevators—a local group of 9 serving the first 12 floors—an intermediate bank of 9 up to the 22nd, and the balance the tower. These hasty guesses will be checked most carefully by competent engineers as to number, size of cars, speed and essentially in the timing, from level to level, so as to obtain satisfactory performance. Passengers will be restless if they are kept waiting beyond established seconds. Additional difficulties arise in inter-floor traffic, so that at the outset as much information as may be possible to obtain is vital, if a sensible arrangement is to be presented.

Meetings begin to be held in our office where the preliminaries are analysed by the real estate experts who will conduct the renting of the space. We have prepared schedules of floor areas indicating their gross number as well as the amounts representing services. The subtraction leaves net rentable square feet. Having established a proposed floor to floor dimension, the cubic volume is also established. From this somewhat crude beginning, a theoretical cost and income appears as the first indication of the eventual picture.

At these meetings another group emerges —the individuals representing loaning institutions. On most of the big structures, and varying in proportion as financial matters indicate, the larger proportion of the expenditures for the operation stem from loans by insurance companies or banks. Their representatives are thoroughly able to gauge the validity of a project and have no hesitancy in expressing themselves if they discover something that they do not like.

Inversely, they do help, for their breadth of experience can be invaluable and without their approval the incipient monster may never raise its head. The meetings become fixed weekly sessions with recorded minutes, agenda covering subsequent meetings and as the work progresses, approvals are noted in all phases of the work. By this time, the mechanical and structural engineers have long since been working with us and recommendations appear as to the spacing of columns which in turn suggest fenestration, air conditioning systems that call for vertical shafts for fresh air intake as well as exhausts.

The plan begins to freeze as these major elements become fixed. In these large buildings, due mainly to the present demand for steel and the length of time required for delivery to the site, it is customary to buy the steel far in advance of finished drawings, the assumption being that a general scheme has been adopted and eventually the precise costs will be computed when all of the information is available.

The risk one takes in purchasing steel material so far ahead must be balanced against the time one gains in being reasonably certain of having the skeleton frame when it is wanted. Although this theory pertains now, when active demand for steel still exceeds normal supply, the procedure is not necessarily a new idea. For over a very long period steel deliveries have always remained a problem considering the time involved in starting with the architect's drawings, the steel fabricator's designs, the checking of one to the other and eventually the certainty that when the foundations are completed there will be immediate activity on the structural frame. Time lost in this stage can be a very expensive luxury.

The builder is selected and usually one that is well versed in this type of work. His first task is to present a budget computed from the sketches, then a time schedule that defines the periods starting from the demolition of existing buildings to the day when tenants can move into the new edifice. There is a little battle developing at this moment, for the architect must be extremely cautious that enough time is permitted him to function properly. Although the budget is as accurate as intelligent guessing can foresee, and there are advantages in being able to purchase steel in advance on a tonnage basis, with delivery in so many months, the architect and engineer simply have to co-ordinate their work to fit this timetable.

Before the design of the steel frame can be considered final, a whole series of further vital decisions are necessary. In our climate in New York, we have a few months of very warm weather. No new building of any importance would dare to ignore air conditioning. This is not merely cooling, but movement of air and exhausting contaminated air during the entire year. To bring fresh air into the building, and carry it to the spaces required, eliminate smoke in conference rooms and in general, produce ideal conditions, we need vertical shafts so placed that the horizontal runs of ducts will not be excessive. The ceiling heights, floor to floor, are concerned with the required depth of these ducts as well as another more or less accepted feature—acoustical ceilings with recessed lighting of established intensity, usually about 45 ft. candles at desk level.

The air conditioning analysis leads immediately to the amount of glass that the designer wishes. The marked variation in cost dependent on this decision is the subject of vigorous discussion at the weekly sessions. In so many of our recent structures more and more glass appears, to the extent that a style has developed insistent on this superabundance of glass in spite of the additional cost of protecting the building from this surplus and eventual increased maintenance. Various types of windows have been used; pivoted, top and bottom, double hung and finally, sheets of glass that do not open at all. In turn this brings about contrivances to clean the glass from equipment fastened to the roofs or roof.

Further development of the so-called glass box eliminates masonry completely. Wise or not, the principle is to produce a skin of metal holding the glass, with the result, a shimmering block of glassy and stark simplicity. All these experiments bring up the natural questions of weather protection. The differences of temperature in our climate, the varying coefficients of expansion and contraction of metal and glass, the difficulties of being certain that the skin will withstand strong winds and intense storms are details that the designer of solid masonry structures of yesterday did not have to consider. There is the further matter of condensation where great variations of temperature inside and outside cause water to gather inside the metal skin. The design must provide for this moisture to disappear and not remain inside the wall. These are some of the matters that come up at the meetings, and

as they proceed countless other questions arise.

The elevators we assume to be fixed as to number, size and speed. The new element is that of cars without operators whatsoever. There have, of course, been many ancient cars operated by button control, but these new systems are so arranged that the timing of all of the cars in all of the banks is organised, depending on the pressure moments of the day to develop a determined number of trips up and down per hour. Anyone standing in the doorway will be protected by an electric eye from the car rising while he is in a danger zone, but the doors will automatically nudge him for a prescribed number of seconds to urge him to enter or leave.

To be sure, there is another major reason for having these cars under button control. There have been strikes where it was impossible to expect people to climb many storeys when the cars did not move. The plans will eventually have to indicate the necessary space for the equipment required, particularly in the ground floor lobby where the elevator starter must be in visual control of the various banks of cars and by telephone to or from any car he can be prepared to assist if any emergency arises.

While we are considering mechanical features, a few other incidentals appear. In modern office buildings we are aware of the growing demand for electrical devices of every conceivable variety, including computing machines and other time-saving paraphernalia. This suggests necessary electrical outlets plus capacity for the required current. Telephones increase in number so the electrical nerve centre of the building becomes far more than a panel board with a few fuses to replace.

In the planning of the building proper, when I mentioned the development of a new conception of modern design, I did not refer to another break in tradition. Not too long ago, we were told that it was very wise to avoid spaces that were more than 28 ft. from glass to inner wall. This was a noble gesture before air conditioning and modern adequate illumination. Actually, there is a very strong demand for bulk and deeper space where organisations of size can be arranged on one floor. In the tower buildings, the lower levels automatically produce these large areas, but I do know of complaints from individuals who were entranced by the aesthetic joy of being high in the air, on several floors, and then realising that they might have fared better far nearer the ground. This concerns, to be sure, the larger user of space and not the organisation that is adjusted to one of the tower floors, in the large block we are considering—some 20,000 ft. of area.

I trust that I am not digressing when I refer to another tendency of the moment and particularly in New York City, to cease the type of operation that was customary a generation past. There were many modest investors who caused to erect equally modest buildings of 25 ft. to 100 ft. of frontage, where each structure had its boiler plant for heating and the usual facilities of operations. At this moment, practically all of the buildings under way are extensive in area, many covering one of our normal city blocks of 80,000 sq. ft. Inasmuch as there is high pressure steam available in most of the city, and under municipal control, the boiler room has evaporated and with it the need for a staff of mechanics to run it. The big building can produce a great variety of space choices—restaurants, banking quarters, and is in fact a small city in itself.

The plans of the building having reached a reasonable status of decision, the time schedule pops up again, for the synchronisation of every phase of the work is an exacting one. Our streets are so active, particularly in the heart of New York, where the majority of these big buildings appear, that there is no space to store quantities of anything. The combined team of architect, contractor and all of his subcontractors must organise schedules for approvals of plans, shop drawings and other required material. If there is the slightest question of delay in fabrication of any part of the structure, or of acceptance later by reason of requests for approval, some one of the team will check immediately and inspect directly at a plant no matter where it may be. The importance of timing of the production of plans and specifications through to the superintendence by our men at the job, daily discussions covering every phase, develop eventually in completing a major block in a surprisingly short number of months.

As an example, one just about to be completed took six months of study before actual work began. From the day steel appeared at the foundations until the 32-storey building was turned over to occupancy, eight months went by. The result was one of team play, where the owners made prompt decisions; we were sharply aware of our responsibility and fortunately there were no incidents such as labour difficulties or strikes to disrupt the programme.

I don't know if you would be interested in too many aspects of control, but inasmuch as my subject-matter implies office practice, I must not ignore certain vital phases. The general contractor has, of course, the task of translating our plans and specifications into estimates. We have produced a very complete set of drawings and documents, as have our engineering consultants. The bidding list is approved by the owners and us, and later the figures are reviewed with full consideration of the ability of a potential sub-contractor to do the required work in the allotted time. Often a concern has so much on contract that we question that it should take on more.

Later on, situations arise where payments to general and sub-contractors are requested and these are reviewed by our job men and our office for recommendations. No variations to any contract are permissible without signatures of owner, architect and general contractor. Verbal instructions are necessary, but must be confirmed in writing. We know how simple it is for demands to arise a year or more later and how difficult it is then to recall discussions or to establish fair adjustments.

We are not free as yet with the building, for in these structures intended for renting or specifically one to be used by a single company, the instant occupancy is anticipated, we are watchful of what can happen when bright ideas come to pass. In buildings over 150 ft. in height, no wood or other non-fire-proof substance can be incorporated, according to our code. Some tenant, employing his own architect or following his own judgment, may decide to have beautifully panelled wooden walls, and if we do not learn of it in advance, the building has a violation placed against it, much to the disgust of everyone. Electric lines can be over-taxed and countless minor irritations may develop unless we review all plans of all areas and approve them.

You might be interested in a few other general remarks as to certain standards of dimensions.

I am only too well aware that situations in my own lifetime have seen enormous changes, but at this moment, in planning the type of building I have been describing, we find that ceiling heights range, floor to floor, from 11 ft. to 12 ft. and there are enterprising builders who have reduced these dimensions to 10 ft. and 6 in. on the theory that they can squeeze more rentable area in the fixed zoning envelope. Two factors develop. One is that it is usual in buildings of reasonable quality to have a cinder fill of at least 3 in. over the concrete floor arches. On top of this fill—1 in. of finish. When these 4 in. are eliminated in a structure rising many storeys there are obvious savings, but the difficulty arises when under-floor duct systems of electrical wiring are required, and they always are. It develops on occasion that in the urge to economise on dimension of floor to floor height, the structural engineer may propose shallow beams that appear glamorous for this one result, but actually call for heavier steel in the final design than would have developed if deeper girders and more shallow beams were indicated. This merely indicates that the complete and satisfactory design of the building must cover a multitude of considerations that have to be balanced one against the other and decision must be made promptly and as wisely as the combined efforts of the building team can envisage. In line with these various matters come the necessary air conditioning ducts and exhausts. They must avoid puncturing the steel and where the lateral runs are extensive they have a habit of demanding space—all at the expense of the final clear ceiling height. We are becoming accustomed to accepting 8 ft. as a minimum figure at the point where the deeper ducts emerge from the vertical shafts—all of which sounds absurd when the basic floor-to-floor figures are realised. Actually a great deal of care is required to ensure that very figure, remembering that the steel must be fire-proofed, the ceilings are customarily firred and there are plumbing connections to boot. In one of our buildings, I recall the complications that

developed when one of the tenants elected to install a dining area and kitchen for his own use. The additional facilities beyond the normal building requirements, spotted in the middle of a tall structure required a complex set of drawings and day by day checking that amazed us even though we have become hardened to surprises. There were kitchen exhausts, range flues, drinking fountains, special waterproofing of floors in view of the fact that the same tenant occupied the floors below and wanted complete assurance of comfort. You might be interested to know, incidentally, that very frequently the architect of the building does not necessarily handle all the details for all of the tenants in his buildings. We find, as a matter of fact, that there are specialists who have broad experience with problems of office building layouts and they are very often brought in, first to analyse the availability of the space and then to plan precise arrangements of partitions, furniture or whatever else the individual client may desire.

One item that never fails to interest the building team and much more particularly, the tenant, is the type of partition that will divide the working areas of the building. Any generalisation will have to take cognizance of the temper of a precise moment —when, for instance, tenants are very much wanted and the landlord will be generous in supplying almost anything that the suspect may desire. This attitude changes very rapidly, depending entirely on the hard facts of economics—the law of supply and demand. It is not too different actually in the design of a structure for one individual or one concern, for the limit of expenditure becomes important and minor officials can develop very extravagant ideas as well as can tenants.

Our first premise is, that in the tall buildings—that is, over 150 ft. in height, all partitions must be fireproof. The least expensive ones are those of plaster block, 2 to 4 in. in thickness depending on the height of the ceilings. The wall when finished, is then plastered and decorated as may be desired. Here, the difficulty is that quick changes, later on, are very much of a nuisance, for removing a wall is a dusty and cumbersome task. Although the theory of using the very minimum of fixed partitions is now in vogue, there are always areas in which noisy folk must be contained and there are also the rooms where privacy is desirable; plus the fact that the upper echelon may want more noble settings than their subordinates. The plastered walls, under these circumstances, permit of various treatments and give the designers full leeway for expression.

The metal or the metal and glass variety is far more common, particularly those manufactured to a known module, and there are many highly competitive varieties from which to choose. The more expensive ones consist of two metal sheets containing a sound-absorbent material, such as fibre glass. Being standardised, the layout of any area necessitates a precise system, conforming to accepted dimensions for doors and other openings. They can be of various heights; colours are also assumed to be of a choice of stated hues. Once the architect deviates from the norm, he can expect the costs to rise astronomically. The stock partitions can be added to at will and we, in our own offices, can resort to the published details prepared by many companies, and there is a reasonable choice in colour as well as design. I am afraid that the purist will resent the idea of accepting such predigested material, but my function is to tell you of normal practice and this is *it*.

There are also standard partitions in fire-proof wood and they are of good design and quality. The concern of the user is to what degree the partition will retain its attractive appearance after a few years of normal usage. The steel variety can be painted and the wood one refinished. The choice very frequently resolves itself to the wish of the individual in charge, as to whether he dislikes being surrounded by metal walls, whatever the colour, or prefers the charm of wood. The cost factor, naturally, appears and the decision may be affected by the volume of the work and the desire of the particular contractor to have the work in his shop.

The other factor of noise in large areas is a constant source of concern. Most of our ceilings today have acoustical treatment of one type or another. The usual treatment is one where the acoustical panels are held on suspended contrivances below the air conditioning ducts, electric lines or plumbing pipes. Frequently these panels rest on light channel frames, so that to obtain access to the mechanical features above, it is a simple matter to lift them and slide them to one side.

Naturally, cost factors enter and every situation has to be considered as to its value relative to the entire building. There are less expensive treatments such as fastening acoustical material to the underside of the ceiling surface and leaving duct work exposed. Where more special consideration to sound, however, is pertinent, in spaces where elevator machine rooms may appear, fan rooms or other mechanical contrivances adjacent to usable space, double partitions are necessary and it is not unusual for us to consult special acoustical engineers, whose task it is to review all of the conceivable difficulties and advise us as to solutions. The vibration of a heavy motor or the constant roar of a machine cannot be accepted as normal.

The floor covering is another contribution to the comfort of the resident of the tall buildings and here again the choice varies between the individual wishes of the principals, down to the areas where good housekeeping is even more important. Asphalt tile, easily pasted to the concrete floors, is very common and inexpensive. There are new vinyl tiles that show more resiliency and also cost more. Carpet for executive offices is still the most satisfactory material, not only for its sound-absorbent virtues, but for the choice of colour and texture.

In determining the basic building plan, the column pattern has important characteristics and when the primary features of stairs, shafts, toilet rooms and elevators fall into place, this column grid must adapt itself to eventual corridor planning and most particularly indicate that there is no extravagant use of steel by reason of the proposed scheme. Bays are normally in the neighbourhood of 20 ft. Situations arise where, in planning a structure where serious wind bracing is demanded, a wider bay is desirable so that the steel members can carry through the depth of the building and permit a simple framing plan. At the same time, this wide bay permits additional flexibility in the fenestration pattern. You may note how the design problems constantly revert to the eventual building efficiency. These very windows must also be so arranged that a varying and satisfactory room plan may be developed. It is true that there are more and more evidences of open floor plans with the elimination of a multitude of private offices. The cause of the tendency is not necessarily one of economy but mainly the flexibility that can permit of immediate expansion, contraction or simple elimination of space that can be of more service otherwise.

Another potent detail is that our present laws do not permit city water to be wasted in the operation of the air conditioning system. Immense quantities of water were formerly dumped into the drainage system, but no more. We now provide for cooling towers on the roofs where the heated water can be cooled and recirculated. In turn, this presents a design problem for they are large, bulky and heavy.

In every one of the big buildings, the question of garage accommodation arises. The city requires off-street accommodation for trucks, based on the number of square feet of rentable space. These handle any service requirements in the structure, but there is no ordinance that demands facilities for automobile storage. If the basement is the logical place, a building has to be sufficiently large to warrant the devoting of the area for reception of cars and required ramps. Elevators for cars and special mechanical devices are considered but seldom used in this variety of building, for there are quite enough mechanical problems without adding these besides.

From the point of view of income, the garage is of no consequence, for the space it requires could be used for equally profitable purpose without requirements of special ventilation, service and the like. Actually, the cost per car to the proposed user would be so high that the average individual would never use it. That has been the experience in recent structures. However, the value of having such a convenience very often outweighs the negative data and most of the big buildings do incorporate space for a limited number, far less than the building could use, were the necessary charges less burdensome.

The eating problem is still another interesting development of this minor city of ours. Considering a population of roughly 10,000 people in the structure under consideration, there obviously will be a demand for varying types of accommodation. There will be employees who will eat

in leisurely fashion and those who, in spite of the ill it does them, will ask for rapid-fire service at relatively low cost. Your English tea tradition has not crossed the sea, but we have one of our own—the coffee break, which has no fixed moment but rambles through the day when employees feel the need for relaxation, or modest stimulus. Very often a fine club develops—usually in the upper reaches of the building—but beyond this you will find that many individual tenants prefer their own eating arrangements, some with actual kitchens, which imply flues to the roof, and others where service areas are planned to permit caterers to bring food from outside and handle it properly for necessary service. The cafeterias and less expensive eating-places are usually on the street level or below. All of this is most interesting except where we become involved in handling flues, special plumbing, waterproofing of floors, arrangements for handling garbage, as well as the delivery of comestibles to the various levels.

Our cities present different land and geological characteristics, and in New York City we are frequently reminded of our youth, relatively, for not too far down is virgin territory where we have evidences of the streams, swamps, hills and rocky outcrops that not so many years ago were the contours of a pleasant, tree-covered island. The city has straightened its shoreline with fill, so in one instance we found ourselves sinking deep into the former river bed to lay the foundations for a tall building, and in so doing found boats and wharves discarded over 200 years ago and sunk into the muddy bottom. This particular job required open caissons to rock at a depth of over 120 ft. Rock over the city generally is roughly 20 ft. from grade, but there are plenty of streams that still run underground and must be steered to proper outlets. There are quicksand areas, as you might expect in any countryside, and on this occasion some ingenuity was required to obtain a firm basis for a particularly tall structure. Where swamps exist, and we have them indicated on geological maps hung on our office walls, piles come into play.

My purpose in referring to these minutiae is that, not infrequently, any special cost due to unusual or involved substructure work may block the development of a project, but certainly the knowledge of what may eventuate must be available. We do, to be sure, have test borings of soil conditions and they need translation, also, into actual engineering requirements.

I trust that in my emphasis on organisation and purely technical matters I have not given you the impression that design and the quality of the building is of minor interest. The architect, in essence, is the conductor of an orchestra that is quite large and is a bit difficult to keep in tune. He must be aware that the emphasis on the technological problems does not assume that the design factors are secondary in importance. In reverse, if the practical phases of the work can be controlled through reasonable competence, he should have the leisure and enthusiasm to devote the bulk of his time to the creation of a work of art. That noble goal, however, is not reached too easily, for what will be considered beauty tomorrow is anyone's guess. All the designer can do is to try his best and be honest to his own convictions.

DISCUSSION

Sir Howard Robertson, M.C., A.R.A., D.Litt., S.A.D.G. (Past President), moving a vote of thanks to Mr. Kahn, said: Mr. Kahn, renowned architect though he is, has an awful thing to live down. He was a student at the École des Beaux Arts! That is where I first met him, so we are outside the pale together! However, I also have a more personal interest in Mr. Kahn, because my wife, when she was an architectural student, had the good luck to win the second time the Alfred Bossom Travelling Student prize. He is here and he can contradict me if he dare! She went to New York and Sir Alfred arranged that she should have an architectural mentor there and by good fortune it was Mr. Kahn. He gave her a great deal of information—so much that I eventually married her for her 'know how'!

I dare say that Mr. Kahn expected a young male student with a little beard and sweater, and maybe his kindness to my wife was a sort of thank-offering. I do not know! Mr. Kahn is still very generous. He has come a long way to be with us tonight, and he has given us what I think you will agree has been an absolutely fascinating lecture.

He has a practice which is rather amazing, and he and his assistants must work in a very intense and hard way. They must have acquired the absolute ultimate knowledge of the problems and the solutions which they are attacking, otherwise they could not achieve what they do. It is most discouraging to us empiricists to see what their office turns out.

There are a number of questions which I should like to ask him, and I am sure that the audience will have many more. I should like to ask him how long it takes in New York to get a complete approval for a big building, slides of which he has shown us. I ask that question in deference to our Chairman tonight!

Another question which concerns and interests us all is in connection with elevations. A great number of them are metal with fascias of glass. Why is glass so immensely popular, since in my experience the blinds in the office buildings in New York are so often down to ward off the heat and glare and the lights are on inside because the blinds are down!

I wonder also whether the luxury of these all-glass fronts is paid for rather heavily by the additional cost of the air conditioning. The constant load on that must build up to quite a heavy economic burden. Perhaps it is partially to do with the question of styling. It appears in motor-cars, for instance, for you cannot sell a car unless it is longer and lower, with the result that you have to crawl in on your hands and knees! You cannot wear a hat in the back seat, and you travel down amongst the mudguards of the buses and the exhausts of the diesel engines! That is probably due to a desire for speed which you can seldom achieve under present traffic conditions and which is generally illegal when you do!

Are buildings, Mr. Kahn, eventually going to be what you might call 'consumable goods'? Is the day coming when in New York if a building is ten years old they will prise off the façade with something like a gigantic tin-opener and put on another one, perhaps in plastic? Whatever the answer to that may be, Mr. Kahn is catholic in his tastes. He designs fine buildings in metal and glass. He also designs in brick, which I suppose one would have thought was completely on the way out. It is nice to see such beautiful brickwork.

I should like to voice, if I may, on your behalf our very sincere and real thanks to Mr. Kahn for quite an unusual and most stimulating lecture.

Mr. Edward D. Mills [*F*], who seconded the vote of thanks, said: When I was invited to second this vote of thanks, I accepted with very mixed feelings. It was first with a feeling of pleasure, because it is always a very great pleasure to welcome a distinguished guest from the United States. We had heard a good deal about Mr. Kahn and had seen illustrations of his work, and now that we have heard and met him our pleasure is even greater, particularly in view of his stimulating lecture.

Secondly, I accepted with a feeling of misgiving when I heard that Sir Howard Robertson was to propose the vote of thanks, because it is almost impossible to follow him. He always says exactly the things you want to say, and says them much better, and he uses very funny stories which makes anything following seem second-rate! Therefore, as I say, I accepted the invitation with great diffidence; but I am glad I am able to thank Mr. Kahn for his address tonight, and for the illustrations which he has shown us, because we can learn a great deal from what he has said and from what he has illustrated. After all, our buildings are now bigger and taller, and many problems which are faced by American architects now will be our problems in the future.

There are one or two points which I have noted as being of particular interest. The first is the fact that steel is usually purchased well in advance of the building contract, and even before the drawings are finalised. That is a wonderful idea, and I wish clients in this country could be persuaded to look as far ahead as that, because time is wasted waiting for things to move. Secondly, we are already taking advantage of the American system of nominating our general contractor and choosing a man of experience and one suited to that job rather than leaving it too long in the open tendering system.

Thirdly, of course, there is the fantastic organisation which Mr. Kahn represents and which the speed of building illustrates so well. The very idea of building a 32-

storey building in eight months after six months of study makes one a little dizzy to think of, and we should really like Mr. Kahn to spend a week or so with us telling us how it is done. He has given such a tempting glimpse of what goes on we should now like to know how we can get our smaller buildings finished in anything near eight months.

Of course, no variation is a wonderful idea and perhaps that is the correct thing to do with the speed at which building is carried out.

It would be interesting if Mr. Kahn could tell us more about his own office organisation. How many people does he employ on these activities? At the same time I think that he should congratulate them on the photographs which were excellent. There must be some difficulty in getting the photographs taken in view of the fact that buildings go up so quickly a problem is involved in getting the exposure right!

It is with the greatest pleasure that I second the vote of thanks.

Mr. E. J. Kahn: Sir Howard Robertson raised an interesting point concerning the approval of plans. I am sure that we have the same difficulty as is experienced in this country in getting before the right people who can take the time to look at the drawings. They usually say that they are too busy. Actually we have on our own staff one extremely good man whose job it is to do nothing other than sit in the Building Department all day long! That is not so funny as it sounds. He has a limited drawing account, and if he takes someone at the Building Department to lunch we think it is perfectly proper, because it is often possible to talk across the table and explain a set of drawings! This is in no sense of the term bribery, and in all the years I have been in practice I have never attempted to bribe anybody. In any event I do not think that it pays very well. However, a man may be too busy when at his desk to look at anything, but it is possible to show him plans over the luncheon table and after some time, and by keeping at the man, you may get him to approve the plans. There is a whole series of different departments to be consulted, but this man of ours who sits in the Building Department is well equipped to talk to these various departments and eventually we obtain the approvals.

Of course, we have to get the approvals before we get on to the production of plans, and we hold frequent meetings at which the owners are always present. That is an important point. These plans contain absolutely everything down to the last detail, and if the owners suddenly have some bright ideas and want to change something —and it happens—then we are able to tell them that it will delay their building and cost X dollars. Therefore, they are aware of that to begin with. The minutes of these meetings are kept and indicate how various points were answered.

Sir Howard Robertson also raised a point in connection with metal skin buildings. Perhaps you noticed that there were no metal skin buildings in any of these photographs. Most of them are masonry. You have young people coming along and saying that it is ridiculous to use brick. I love brick and we have very good craftsmen to handle the brick. I have heard all the arguments that it is old-fashioned and that it is not so effective when it comes to weather protection; but if you have the brick properly waterproofed, these buildings work as well. The all-metal and glass buildings quite frankly bore me a great deal. We are putting up many of them. The metal and glass building is very expensive, and the problem of getting the building tight is a big one. When you have a hot sun on the metal there will be expansion, but when you have a 30° drop in temperature in one day it introduces a big difference in expansion and contraction in a comparatively short space of time, and as a result something will move. The glass will move against the metal and there is not much that can be done which will make it tight.

Then you get condensation in the building. There is a tendency for people to say that the modern approach is to have all metal and glass buildings and no masonry. I think that is foolish and architects have to be careful not to be pushed into something which is the style of 1957 or 1958 or whatever year it may be. We have to use our good judgment.

With regard to the question concerning the number of people we have in our office, we have not a very large staff at all. I think that our total staff numbers about 90 people, including secretaries and the man down at the Building Department! The curious thing is that in a very big building you cannot possibly put more than a few good men on the job at one time. A job came along the day before I was leaving for Britain. I got in touch with one of our people, spent several hours with him and decided to work on a scheme. When I get back that scheme will be in good shape to look at. The plan is the important thing to me. As this gets into the further action stage we cannot put more than six people on it. The biggest building we are now planning—44 storeys and covering 80,000 sq. ft.—the plans, being almost completed, have a staff working on them at this moment totalling only nine or ten people. One of them is a checker who is now checking the design against the architecture, because we find it is important that the mechanical engineering and structural plans be checked against our architecture so that we are certain that the mechanical features of the building will fit absolutely and accurately into our plans. There can be no changes later on. I cannot conceive of anybody telling me that a big building requires 40 people, because if you do use 40 they will be sitting on each other's laps and will accomplish nothing.

The chief draughtsman will prepare a number of sheets for a big building, and they will represent the foundations, lower floors, and so forth, and will show the whole inside of the building. For instance, the electric closets are very important, because sometimes the amount of electrical contraptions is enormous. All those things have finally to wind up in electric closets which are completely equipped with electric conduits. Those conduits in turn have to run through the floors and reach all parts of these big buildings. I assure you these things are laid out accurately. There will be one or two people on our staff who will be responsible for that. The staff required for a big building like that will be ten to fourteen people.

When we get to the actual construction there will be other people there all the time. So far as the mechanical engineers are concerned, for some years we had men of that variety on our own staff, but we found that we could not possibly afford to have the number of men required. We were doing a great deal of work in Idlewild, and in that case we required a large number of mechanical engineers. However, we have men in our group who act as liaison officers so that we know precisely what is happening all the time. I want to disabuse your mind of the idea that we need a thousand men or some fantastic number like that.

Mr. J. T. Castle [*A*]: A great deal is said about the short life of American buildings. Is that really a fact? What is really the average life of the ordinary sort of building in New York of fair height? In other words, what proportion of pre-war New York buildings of any real height are still left?

Mr. E. J. Kahn: That is the sort of discussion I hear tossed about and it is a matter of style. I think that the style complex is more difficult than any other. We put up a building ten years ago of a type which we are not building now, and I heard that the owners had decided to install an electronically-controlled elevator after ten years at great expense. It is all a question of style. It is rather like a woman who buys a new hat. It has nothing to do with the character of the woman. People often change the style of the buildings because they have the money to spend on them. It has nothing to do with the structure of those buildings.

We ourselves altered a building which we put up in 1882. We were asked to add certain facilities, and we found that the building was quite as good as ever. It was a good structure and all it needed was a new hat. Any idea of the buildings not standing up is rather unnecessarily exaggerated. Most of them are steel and concrete buildings. As far as their life is concerned, you may rest assured that they will last for countless years.

On the other hand, in the case of the metal—usually aluminium—and glass buildings, we are asked for certain guarantees about whether the material will stand up over a certain length of time, but I cannot find anybody who will guarantee that. The aluminium companies will not guarantee the life of coloured aluminium, and we do not use it as a normal rule. If we have to use it we have a very heavy gauge. Stainless steel, of course, will stand up in our climate and I have no doubt that it will stand up in yours.

Mr. J. **T. Castle** [*A*]: I did not really intend to suggest that buildings were pulled down because they had deteriorated. What I really wanted to know was whether it was true that buildings were pulled down after 20 years because they were considered out of date.

Mr. E. **J. Kahn:** We have torn down many buildings. The tendency is no longer to have these smaller buildings. We are at the moment tearing down 18 good size apartment buildings. They are excellent buildings and there are nice people living in them who are squealing rather loudly about it; but it is a question of economics. The 18 buildings have their own boiler plant and own mechanical organisation and the fact that they do not pay very well is the reason for their demolition. If buildings no longer have an economic life they come down. I doubt whether any of the buildings which have come down are of great aesthetic value. On the other hand I am happy with what I have seen in London. I think you have more fine buildings per block than any city I have seen in the world. I think that a great deal of our older building in New York was done by people who should not have touched it in the first place.

Mr. F. A. **Ruhemann** [*F*]: I understand that occasionally it happens in this country that the final estimates turn out to be much higher than the preliminary assessment. I suppose that Mr. Kahn's clients want to have a rough idea of what a building will cost before they commission him to carry out the great work of designing and specification. Does it happen in the United States that there is a great discrepancy between these two figures, and does it happen that a project is abandoned for that reason and, if so, what proportion of fees do you get in that case?

Mr. E. **J. Kahn:** We are all human and can make mistakes. A budget is prepared at the early part of the study, and at every one of the weekly meetings to which I have referred this budget is constantly referred to. Anything can happen. As soon as the estimate exceeds the budget, a red light goes up. In the large number of buildings with which I have been identified, I am happy to say that I do not know of a single instance where that has come about, because we have taken the trouble of insisting on these budgets being developed as we go along. I think it is a matter of organisation. I suppose somebody will call me a business man and not an artist; but I say that the buildings have been well planned. They work and are economically sound, and that is the result of this careful organisation of knowing what fits into a building and the cost. We also know at the beginning that the owner will be happy about it. I do not think that it detracts from one's artistic joy.

We are doing a big school for New York City which is going to cost millions of dollars; but I have been informed by the Board of Education that if this school costs one penny more than the budget allocated it will be no good. We call in one man who specialises in keeping records. We pay him a considerable fee to work with us, and every week he comes to our office, gets the drawings and keeps a running cost of this school. We have complete drawings which show every desk and blackboard. Not a detail is missed, and it is very important. For our own protection we have had this carefully organised, and have left a substantial sum as leeway. We usually take precautions in these preliminaries and say that a certain leeway is necessary.

Mr. S. Meyrick [*A*]: Having nominated your contractor, do you have any arrangement for allowing him to charge more or less if the cost of materials and labour fluctuates during the course of the contract?

Mr. E. J. Kahn: In the case of these big buildings the contractor is invariably selected first, and there are various ways in which that is done. Usually the man works on a fixed fee basis plus the cost of the work. These costs are accurately kept by the contractor, and we receive these figures at least once a week. We keep a running account, and our men on the job check every detail of the whole cost. The money paid to the general contractor comes from our own certificates, and sums are allotted to cover extras which might come along. Our plans are so complete that unless the owner or someone else makes a serious change, we are not likely to have any serious argument.

Mr. W. Sedgwick: I should like to know how you come to assess the ability of a contractor, and if during the course of construction he should go into liquidation, what steps are taken to combat it?

Mr. E. J. Kahn: In the first instance a firm like ours has had charge of many thousands of these buildings, so we know fairly well the type of people who are qualified to do the work. We sit down with the others and say, 'There are six people who might be considered for this particular job, but these two are so very busy that we do not think that they are the people we want for this. This particular firm we know is in a position to undertake the work. They have good men and I think we should use them.' The fees they charge are almost identical. In New York there are hundreds of firms which would be anxious to do these big buildings, but we know quite well that there are only a few which have the organisation to do it as well as the men to carry it through. If something went wrong I think you would sit round the table and adjudicate the matter.

Mr. W. Sedgwick: You say you do not allow price variation in any form, but supposing the contractor comes to you and says 'I cannot go any further until I have a completion certificate for so much work being done', and having got that amount he is unable to carry on with the contract. What do you do then?

Mr. E. J. Kahn: I think I have given you the wrong impression. The budget is fixed and the contractor's fee is usually an established sum, and he works to this budget. But he keeps competitive figures from the entire industry. These competitive figures are always looked at against the budget. If figures come in which are far higher than the budget, we then have a meeting with the owners. I did not mean to give the impression that the figures so far as the general contractor is concerned are precise. Every contractor is left a certain loophole in his figures.

Mr. S. J. Lloyd [*F*]: Before the war I remember reading in an American glossy magazine a report by an American architect in which he described his own practice, which was a house-building practice, and in which he commented on the costing of his own work in his own office. He stated in his article that when a job came into the office he allocated so much time for every branch of his own professional work, and when a man reached that limit he had to stop. I am wondering whether in your large organisation there is some kind of progress schedule which you have to work to, how strictly it is enforced, and how costs for the work are related generally to the office organisation.

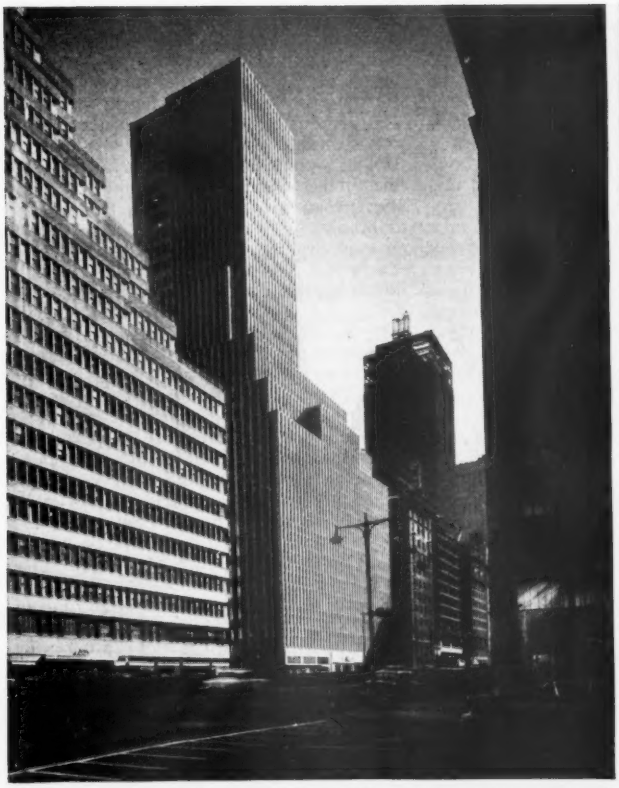
Mr. E. J. Kahn: At the beginning of one of these big projects our head draughtsman will sit down with me, after perhaps several days of analysis, and say, 'It looks as though it will require twelve men over six months'. From that figuring of the cost to the office per hour per man it will give me a rough calculation what in his judgment the work will cost to produce. That gives us a fairly clear idea of what it may represent; but I assure you that if in order to produce a building satisfactorily more time is required, more time will be given. We cannot afford in our office to do a slipshod job. These big buildings run into large sums and we have to have a certain amount of leeway to protect ourselves, but we do organise very much in advance.

Mr. G. V. Howes [*A*]: In these meetings which are held with the owners and others, what part does the architect play? Does he take the chair?

Secondly, with regard to the office, do you find your assistants become natural specialists and is it more economical to employ them in that way?

Mr. E. J. Kahn: These meetings are run by us and I am usually the chairman at meetings concerning the buildings which I control. At these meetings you have the owner, the real estate people who will rent the building, the investment people, and the mechanical and structural engineers. At the same time you may have your own technical men at the meetings, and there may be as many as 20 to 25 people present.

We do find that the men working on aviation matters are quite expert in that particular field. We have six or seven men who do nothing but that variety of work.



They know the words and are interested in the job. The same thing applies to tall buildings and shopping centres. We do not push men into these fields. They get to like them.

Mr. E. T. Ashley Smith [*F*]: In this country since the war most of us have had difficulty in getting good workmanship. We have been amazed at the speed of erection of the buildings in New York and I should be interested to know whether you get good quality at that rate, and whether you experience any difficulty in obtaining it.

Mr. E. J. Kahn: It depends largely on the way in which these jobs are run. It is watched with an enormous amount of care on the part of the contractor and our own men. I go on particular jobs very frequently as do other partners.

The sub-contractors know that if they fall down on a particular job for us they will be in danger when the next one comes along.

The vote of thanks was carried by acclamation.

* * *

On the facing page four buildings in New York designed by the firm of Kahn and Jacobs are illustrated. Top, left to right: 425 and 445 Park Avenue. Bottom, left to right: 100 Park Avenue and 100 Itall Street.

Overseas Tour of the President and Secretary R.I.B.A.: Diary—V

Montreal. (19 May 1957.)

During a stroll in the morning Mr. Cross and Mr. Spragg climbed partly up the 'Mountain' to look at the recently completed vast Montreal General Hospital, designed by Mr. Roxburgh Smith's firm—McDougall, Smith and Fleming. Later, Mr. and Mrs. Ross Wiggs called for the two visitors and took them, with Mr. and Mrs. Roxburgh Smith, to the Royal Montreal Golf Club for lunch. In the afternoon, Mr. Ross Wiggs drove them round the city and showed them many interesting buildings and also the marvellous views from the look-out on the 'Mountain'; they then went back to his apartment for tea, but before going there Mr. Cross gave an interview to one of the Montreal papers on the telephone at Mr. Roxburgh Smith's apartment.

20 May. Mr. Cross and Mr. Spragg went in the train, with Mr. Roxburgh Smith and Mr. Ross Wiggs, to Quebec City, a pleasant and restful four-hour run of some 170 miles through peaceful, interesting country; it was the visitors' first railway journey since leaving England on 20 March. They were met at Quebec by Monsieur Edouard Fiset, and an old friend of five years ago, Mr. Gerard Venne, and Major Guimant, Director of the Museum. Mr. Cross and Mr. Spragg went first to the famous Citadel and looked at the views of the St. Lawrence from the ramparts, and also had a quick inspection of the officers' mess in the Citadel and the museum, formerly a powder magazine. They were shown where the famous battle was fought on the Heights of Abraham, where history was made. Then they made a tour of the new campus of Lavel University and saw many of the new buildings recently erected or in the course of erection. On returning to the city they had a brief look at the famous Château Frontenac Hotel before going to a cocktail party at the Cercle Universitaire, where many of the Quebec architects and their wives had gathered to meet them. The two visitors were introduced by Mr. 'Jerry' Venne and Mr. Cross gave a short address. Mr. Spragg was delighted to meet again many old friends, and was glad that it had been possible for Mr. Cross to see the historical and picturesque city of Quebec, if only for a brief time.

21 May. Accompanied by Mr. J. C. McDougall [*F*], who is a city counsellor, and Mr. Hugh Valentine, President of the Province of Quebec Association of Architects, Mr. Cross and Mr. Spragg paid a formal call on the Mayor at the City Hall. They signed the visitors' book and the Mayor kindly gave them autographed copies of a handsome illustrated book on Quebec Province. Afterwards Mr. McDougall showed them the Council Chamber and they had a talk with the heads of the City Planning Department and were shown the schemes for the development of Montreal. Mr. McDougall then took Mr. Valentine and the two visitors over the Cartier Bridge to the island of St. Hélène and they were able to see some of the work in progress on the St. Lawrence Seaway. The next appointment was lunch with a number of members of the R.I.B.A. at the Faculty Club in McGill University, organised by Professor John Bland [*A*] and Mr. Bob Fleming [*A*]. Mr. Cross and Mr. Spragg briefly addressed the members and after lunch had a most useful off-the-record discussion. Professor Bland showed the two visitors the University library and in particular the ample and well-equipped section devoted to the School of Architecture. Mr. Arthur Paine [*F*] then took them for a drive round some of the residential parts of Montreal and the other cities within the greater Montreal boundary. In the evening Mr. Ross Wiggs took Mr. Cross and Mr. Spragg, with Mr. and Mrs. Roxburgh Smith, over the Victoria Bridge to the Golf and Country Club of Montreal in St. Lambert, where some 40 members of the P.Q.A.A. and their wives had gathered to entertain them at dinner. Mr. Hugh Valentine, President of the Association, presided and welcomed the guests, and Mr. Cross and Mr. Spragg replied. Mr. Maurice Payette, Past-President of the Association and Hon. Treasurer of the R.A.I.C., made a witty speech, in French. The arrangements for this pleasant evening were made by Mr. Bob Fleming.

22 May. Mr. Ross Wiggs entertained Mr. Cross, Mr. Spragg and Mr. Roxburgh Smith to lunch before taking the two visitors to the airport. Thus ended a happy and all too brief stay in Montreal.

Toronto. (22 May.)

Mr. Harry Brown [*F*] of the firm of Mathers and Haldenby was waiting at Toronto airport and drove Mr. Cross and Mr. Spragg to the Park Plaza Hotel. In the evening the two visitors, with Mr. and Mrs. Douglas Kertland and two other guests, were entertained privately to dinner by Mr. R. Schofield Morris [*F*] and Mrs. Morris at their charming home.

23 May. In the morning Mr. W. T. (Paul) Pentland [*A*] called for Mr. Cross and Mr. Spragg and showed them something of the city and then drove them along Lake Ontario, where they saw the old exhibition buildings, and outside the city where a vast amount of industrial development is taking place, including a most interesting office and factory building for a lumber firm, designed by Mr. Pentland. On returning to the city the two visitors joined Mr. H. S. Mathers, Mr. Eric Haldenby and three of their younger partners and were the guests of Mr. Mathers at lunch at the York Club. Before lunch the two visitors looked over the firm's offices on the seventh and eighth floors of a new office building and saw something of the University buildings, including the new chapel—designed by Sir Giles Gilbert Scott—the new Men's Residence and Hall—designed by Mathers and Haldenby—and the older Hart Building for which Sproatt and Rolph were responsible. After lunch a brief visit was paid to Upper Canada College, followed by a tour of the very recently completed Imperial Oil Building, a fine new office building very beautifully decorated and furnished as the Toronto headquarters of the Esso concern. It is not the tallest building in Toronto, but it stands out because of its commanding site, particularly at night when the upper part is flood-lit. The two visitors also went over the new headquarters building of the Bank of Nova Scotia, also designed by Mathers and Haldenby.

In the evening Mr. Cross and Mr. Spragg were the guests of the Toronto Chapter of the Ontario Association of Architects at the headquarters of the O.A.A. This was attended by a large number of members of the Chapter. Mr. George Whale, Chairman of the Chapter, was in the chair and he and Mr. R. Schofield Morris welcomed the guests. Mr. Cross addressed the gathering and Mr. Forsey Page [*F*] thanked him for his address. Mr. Spragg also spoke on the subject of the world tour which he and Mr. Cross had undertaken.

24 May. In the morning Mr. Cross and Mr. Spragg met Mr. F. H. Marani and Mr. Schofield Morris, saw their well-equipped office and met some of their partners. Accompanied by Mr. Marani and Mr. W. K. Aykroyd the two visitors then went over the fine new building of the

Confederation Life Association housing some 2,000 people and having a very fine staff building adjoining with every amenity for the welfare of the staff, including a theatre to seat some 600 people. They also had a quick inspection of the Manufacturers Life Association Building close by, of which the original building had been remodelled and largely extended by Messrs. Marani and Morris. Mr. Cross and Mr. Spragg were then the guests of Mr. Marani at lunch at the University Club, designed by Mathers and Haldenby.

In the afternoon Mr. Forsey Page [*F*] took Mr. Cross and Mr. Spragg to see the new synagogue 'Beth Zedec' at Bathurst. This comprises a group of buildings including the large sanctuary and a smaller chapel, a school and two well-appointed halls for recreational purposes—a very modern and handsome centre, designed by Page and Steele, which includes an attractive 'Brides Room' in the decoration of which Mrs. Forsey Page played a major part. After visiting the home of Mr. and Mrs. Page the two visitors went in their company to the house of Mr. Burwell Coon [*F*] and Mrs. Coon. Mr. Coon had recently succeeded Mr. Page as Chancellor of the College of Fellows of the R.A.I.C. Mr. and Mrs. Page then entertained Mr. Cross and Mr. Spragg at dinner, together with Mr. and Mrs. Coon, Mr. and Mrs. Douglas Kertland and Mr. Harland Steele in the restaurant of the Benvenuto Apartments, another recent building for which Page and Steele were responsible.

25 May. Mr. Forsey Page called for Mr. Cross and Mr. Spragg and—with Mrs. Page—drove them to Lake Simcoe, where they were to spend the week-end with Mr. and Mrs. Douglas Kertland at their very pleasant lakeside house at De Grassi Point. This is about 50 miles from Toronto, an interesting run through scenery which reminded the two visitors very much of the Old Country. Lake Simcoe is a substantial piece of water which joins up with Lake Huron and has lovely, well-wooded shores.

26 May (Sunday). This day provided just the kind of relaxation Mr. Cross and Mr. Spragg needed although they did have a most useful and informal talk on matters of mutual interest to the R.I.B.A. and the R.A.I.C. after lunch, when Mr. and Mrs. Schofield Morris, Mr. and Mrs. Bruce Brown, Mr. Douglas McRae [*A*] and Mrs. McRae, and Mr. Harland Steele were also Mr. and Mrs. Kertland's guests. Mr. Page drove the two visitors back to Toronto in the late afternoon and after dinner they had a quiet stroll round the University, which has a great variety of buildings and all kinds of architectural styles with many trees and green lawns. During their walk they listened to the tunes played on the University Carillon Tower, which ranged from well-known hymns to Beethoven's ninth symphony.

27 May. Mr. John Rankin called for Mr. Cross and Mr. Spragg and took them to Hamilton, where they transferred to the car of Mr. J. Douglas Kyles and, accompanied by Mr. Bruce Riddell, went to the Niagara Falls, looking at Fort George on the way. They were the guests at lunch of Mr. Riddell on the top floor of the Sheraton Brock Hotel, where they had a fine view of the Falls. After lunch they saw the Falls at closer quarters and were greatly impressed. They had an interesting ride back to Hamilton through St. Catherine's. At dinner the two visitors were the guests of members of the Hamilton Chapter, at the Wentworth Arms Hotel, but before dinner they had yet another Press interview and Press photographs. Mr. A. G. Barnes, Chairman of the Hamilton Chapter, presided at dinner and welcomed the guests. Mr. Cross gave a short address, for which he was thanked by Mr. Bruce Riddell, Mr. Spragg and Mr. Kyles also spoke. After visiting Mr. Kyles's house, Mr. John Rankin drove the two visitors back to Toronto at a late hour.

28 May. Mr. and Mrs. Kertland called for Mr. Cross and Mr. Spragg and drove them to Ottowa, a good run of nearly 300 miles through pleasant country. In the evening at the Château Laurier, where they were to stay as the guests of the R.A.I.C., the two visitors met other members from Vancouver and elsewhere who had arrived to take part in the 50th anniversary celebrations of the Royal Architectural Institute of Canada.

Ottawa. (29 May.)

The morning was free but registration for the R.A.I.C. Assembly started at 2.0 p.m. and it was necessary for the President of the R.A.I.C. and Mr. Cross and Mr. Spragg to be televised during the act of registering. In the evening there was a 'Jubilee Gathering' which consisted of a cocktail party at which Mr. Cross and Mr. Spragg had the opportunity of meeting and talking to a host of members and their wives, including a large number whom they had already met in other parts of Canada.

30 May. The General Assembly took place in the morning. The financial report and reports of the various committees were dealt with expeditiously, but Mr. Cross and Mr. Spragg found a good deal to interest them in the report of the Chairman of the Standing Committee on Professional Usage. Mr. Douglas Kertland, President of the R.A.I.C., is chairman of this committee and he read the reports from the various provincial associations recounting their activities and the problems they had encountered during the period since the last Annual Assembly at Banff and added his own comments and suggestions. In a sense it was reassuring to Mr. Cross and Mr. Spragg to find that most of the problems were identical with those they had experienced in the United Kingdom and met with in Australia and New Zealand, e.g. package service, the demarcation line between architecture and engineering, the activities of unqualified persons, etc.

Then followed an interesting discussion on the proposal to demolish or alter radically the west block of the Parliament Building at Ottawa, which apparently is quite unsuitable for modern requirements, to provide private rooms and amenities for members of Parliament. Whatever may be thought of the Victorian Gothic architecture, this block does form part of an architectural composition which is an outstanding feature of Ottawa and possesses considerable historical interest. The consensus of opinion was that the external façade should be preserved, if at all possible. Mr. Kertland then welcomed Mr. Cross and Mr. Spragg, and Mr. Cross gave a short address conveying the greetings of the R.I.B.A. to the R.A.I.C. on the occasion of its Jubilee Assembly and explaining the objects of the extensive tour undertaken by him and Mr. Spragg.

The delegates then went by bus to the Members' Lunch at the Country Club in Hull on the other side of the river. The club is delightfully situated and it was a perfect day. Mr. Maurice Payette presided at the lunch and afterwards an address was given by Professor Louis I. Kahn, Professor of Architecture at the University of Pennsylvania, on *Space, Order and Architecture*. In the evening an exhibition of building materials and techniques was formally opened by Mr. Kertland, and this was followed by a buffet supper.

31 May. The morning session was devoted to a symposium on *The Role of the Architect in Housing*. Mr. Cross and Mr. Spragg were honoured by being invited to lunch with the United Kingdom High Commissioner, Sir Saville Garner, K.C.M.G., and Lady Garner, at their official residence, a charming house which was once the home of Sir John MacDonald. Fellow-guests were Sir Edward Muir, Permanent Secretary of the Ministry of Works, and Mr. Eric Bedford [*A*], the Chief Architect, who were in Ottawa on official Ministry business following a visit to Washington.

The Installation Ceremony of the College of Fellows of the R.A.I.C. was held in the afternoon. Mr. Spragg had seen it once before at Vancouver, in 1952, and he was again impressed with its solemnity and dignity. The Fellows were all arrayed in caps and gowns with their scarlet collars and medallions and entered the room in procession, followed by the Chancellor (Mr. Burwell Coon [*F*]), the Dean (Mr. A. T. Galt Durnford [*A*]), the Registrar (Mr. Bruce Riddell) and the President of the R.A.I.C. (Mr. Douglas Kertland), who have special robes. Some 14 new Fellows were installed and invested with their collars and medallions by the Chancellor, and Mr. Cross was then installed and invested as an Honorary Fellow.

The Andrew Cobb dinner was held in the evening. This dinner is held at every Annual Assembly in memory of the late Andrew Cobb, who was not only an outstanding architect and a much-loved member of the R.A.I.C., but also an entertainer of considerable talent. On this occasion of the Golden Jubilee Assembly the entertainment after dinner was provided by members of the Ottawa Chapter. It purported to be a pageant of the years, showing an architect's office 1907—the year of the Institute's foundation, a scene in the gloomy 'thirties—the

years of the depression when there was no work to be had, and a glimpse of the future—automation in 1998. This was followed by *Plastered in Paris*, a scene at the Moulin Rouge ending in a most amazing can-can chorus. The whole show was a riot from beginning to end.

Mr. Forsey Page [*F*] gave a brief introduction before the show started, explaining the origin of the Andrew Cobb dinner, and Dr. 'Bert' Hazelgrove [*F*] acted as M.C. It was certainly one of the best amateur shows Mr. Spragg had ever seen, and it would perhaps be invidious to mention any individual performer, but certainly one of the highlights was the performance of Gordon Hughes [*A*] as Madame Fifi—a somewhat stalwart and well-padded dame—and his embrace of wee Johnnie Roxburgh Smith [*F*] when Johnnie presented him—or her—with a bouquet.

1 June. Back to business. A meeting of the new 1957–58 R.A.I.C. Council was held in the morning under the chairmanship of President Douglas Kertland, and Mr. Cross and Mr. Spragg were in attendance. After the other business was completed there was a most fruitful exchange of views between members of the Council and the two representatives of the R.I.B.A. on the difficult problems of examinations and registration. The Council expressed approval of the general outline of policy put forward by the President and Secretary of the R.I.B.A. and remitted the matter to the Provincial Associations for further consideration in the light of local conditions.

The lunch which followed was attended by members and their ladies, it was presided over by Mr. E. C. S. Cox, President of the Ontario Association of Architects, whose guests the delegates were. Greetings were delivered by Mr. Ronald Muston [*A*], President of the New Zealand Institute of Architects, Mr. Glenn Stanton (H.C.M.), Past-President, representing the A.I.A., Mr. Trevor Rogers, President of the New York State Association of Architects, and Mr. Cross. Illuminated addresses were presented by the latter three, and that from the N.Z.I.A. was to follow later. Mr. Cross delivered part of his speech in French and this was exceedingly popular with the large number of French-speaking architects from Quebec. In the afternoon Mr. Cross and Mr. Spragg went on a sightseeing tour of Ottawa and the surrounding district.

The climax of the Assembly was the Annual Dinner at which the guest of honour was His Excellency the Right Hon. Vincent Massey, C.H., Hon. Fellow R.A.I.C. [*Hon. F*], Governor-General of Canada. This was a full-dress affair and before the dinner the top-table guests were introduced to the Governor at a small cocktail party. Mr. Douglas Kertland presided at the dinner and after the loyal toast and the toasts of the ladies, the guests and the profession had been honoured a thoughtful and stimulating address was given by the Governor-General.

Mr. Massey then presented Fellowship certificates to the newly-elected Fellows of the R.A.I.C., and various other honours and awards. Mr. Cross was presented with his certificate of Honorary Fellowship and he in turn handed to Mr. Kertland his R.I.B.A. Fellowship Diploma. Another delightful feature of the evening was the presentation of beautifully designed and suitably engraved silver bowls to nine Past-Presidents of the R.A.I.C. who were present, the senior of whom was Professor Percy Nobbs [*F*]. Mr. Forsey Page expressed the thanks of the Past-Presidents. The announcement of the names of the newly-appointed officers of the College of Fellows for 1957–58, and the reappointed officers of the R.A.I.C. brought the formal proceedings to an end.

The conclusion of the Annual Dinner marked the official termination of the Assembly, but not the end of the evening. Over drinks, to which many were invited by Mr. and Mrs. Kertland, Mr. Cross and Mr. Spragg said 'au revoir' to a host of kind friends. As in Singapore, Australia and New Zealand, the kindness and hospitality extended to the two visitors right through Canada was something they will never forget, and it was good to know the esteem and affection in which the R.I.B.A. is held.

2 June. Mr. Cross and Mr. Spragg flew from Ottawa to New York and after arrival, in spite of the heat and violent thunderstorms which seem typical of New York, they managed to have a fairly extensive walk and look at some of the buildings with which they were so familiar from the architectural magazines. Some of these buildings Mr. Spragg had seen on his previous visit, but it was Mr. Cross's first sight of these amazing buildings, which included some of the early skyscrapers.

3 June. Part of the morning was taken up with confirming the travel arrangements back to London and obtaining income tax clearance from the U.S.A. authorities. Mr. Cross and Mr. Spragg also called on Mrs. A. Henkel, Executive Secretary of the New York Chapter of the A.I.A., and thanked her for making the hotel arrangements during their short stay in New York. They then made their way to the U.N. building and indulged in a conducted tour. Unfortunately this was not so much a tour round the buildings as an explanation of the aims and functions of the United Nations, with which they were already reasonably familiar! Mr. Spragg had delightful memories of being shown over in 1952 by the architect, Mr. Wallace K. Harrison [*H.C.M.*], and was therefore particularly sorry that Mr. Cross was not able to see over the secretariat building. After lunch the two visitors had a sight of the City of New York from the observation tower on the 70th floor of the Rockefeller building. This view has been described so often that it is unnecessary to attempt to talk about it in this diary but, like many others who have had this experience, the two visitors were particularly struck with the incredible speed of the lift (or elevator!).

Later in the afternoon Mr. Cross and Mr. Spragg were the guests of the New York Chapter of the A.I.A. at a cocktail party in the Galleries of the Architectural League of New York. In the absence of the chairman, Mr. Abramovitz—of the firm of Harrison and Abramovitz—welcomed the two visitors and introduced them to the members present. Another guest was the recently appointed British Consul-General, and speeches were made by him and, of course, by Mr. Cross and Mr. Spragg. It was pleasant to the two visitors to meet again many old friends, including Mr. Ralph Walker [*H.C.M.*] whom they had last seen at Washington and who very kindly presented each of them with a very handsome copy of his autobiography.

4 June. Mr. Michael L. Radoslovich, Director of Architecture of the City of New York Education Department, and Mr. Dermot Gale, Assistant Superintendent of School Buildings, took Mr. Cross and Mr. Spragg on a tour to see a few of the recently completed schools. The first was Public School No. 34, Manhattan, on the east side of New York in a rather poor district on a very crowded site. It was an interesting solution of a difficult problem, the building being built on stilts. It was designed by Messrs. Harrison and Abramovitz in conjunction with the Education Department. The second was Public School No. 19, Manhattan, again on a restricted site but with a different solution. This was designed by Mr. Radoslovich and his staff.

Mr. Cross and Mr. Spragg then drove through the long tunnel to Brooklyn (minimum speed limit 40 m.p.h.!) and saw the new William E. Grady Vocational High School, Brooklyn, designed by Blumenkranz, Stein, Katz and Weber, a more expensively finished building with a magnificent auditorium and gymnasium and very complete workshops. An interesting mural outside, by Ben Shahn, was not quite finished. The fourth school was No. 272 School, Brooklyn, housing 1,200 pupils, designed by the Department; a simple and straightforward building with no frills. But in all these schools one could not help noticing the completeness and efficiency of all the equipment, including the loudspeaker apparatus controlled from the headmaster's room.

Mr. Cross and Mr. Spragg then called at Mr. Radoslovich's house in Forest Hill Gardens, which is a community based on the model of Letchworth and Welwyn Garden City, designed by Attenbury. Mrs. Radoslovich joined the two visitors and they were the guests of Mr. Radoslovich at lunch at the West Side Tennis Club, where they had the pleasure of meeting the President of the United States Lawn Tennis Association. After lunch Mr. Radoslovich and Mr. Gale drove the two visitors to Idlewild airport and they took off on the last stage of their journey.

The flight over the Atlantic in a B.O.A.C. Monarch was uneventful, apart from a little bumpiness during the night, and the long trip of Mr. Cross and Mr. Spragg ended at London Airport on 5 June at the scheduled time of 10.30 a.m.

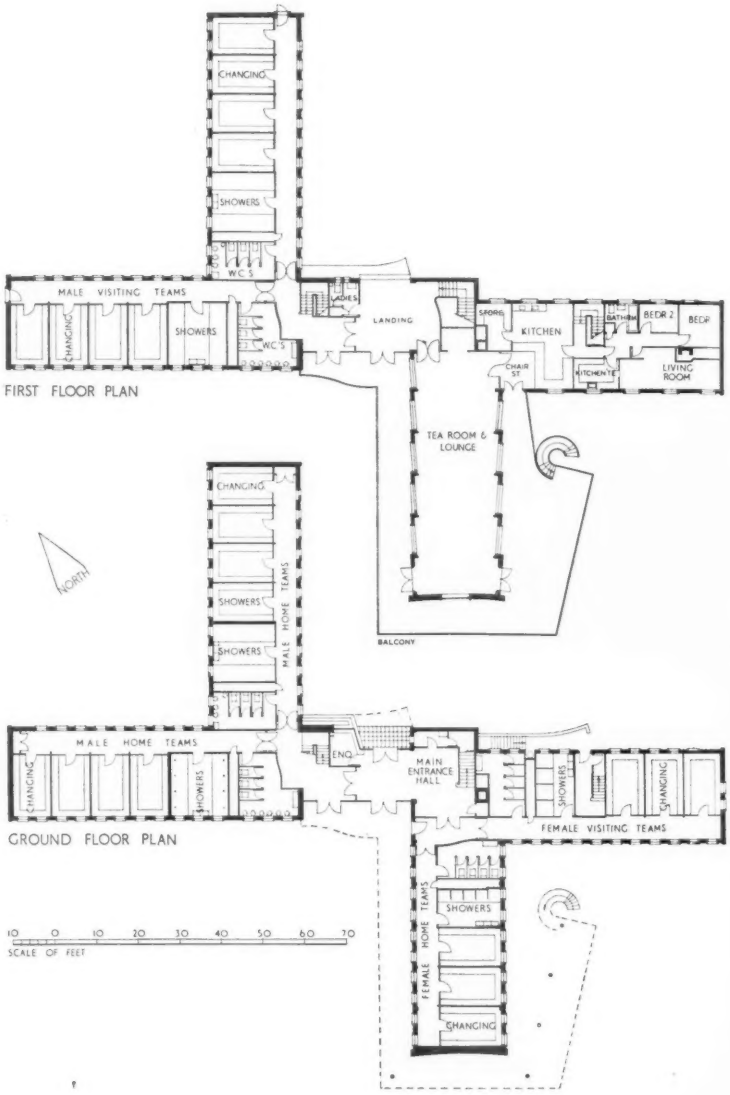
Sports Pavilion at Llanrumney, Cardiff for the University College of South Wales and Monmouthshire

Architects: T. Alwyn Lloyd and Gordon (Dr. T. Alwyn Lloyd [*F*] and A. J. Gordon [*A*])

THIS BUILDING was awarded the Architecture Bronze Medal in the area of the South Wales Institute of Architects for the nine-year period ending 31 December 1955.

It was designed to serve the 32-acre college playing fields which had been constructed two years previously. The building provides changing facilities for nearly 300 players at one time, and there is a tea room (suitable for dances) overlooking the running track and playing fields.

Due to the low-lying position of the site, adjacent to the tidal river Rhymney, 8 miles approximately of agricultural drains had been laid. The high-tide water table level was 1 ft. 6 in. to 2 ft. below the surface. The site is such that all sides of the building are of equal importance and considerable care was necessary in the screening of service entrances, etc.



Plan. The planning problem consisted of providing easy access on entering the pavilion of both male and female teams (home and visiting) to their separate changing rooms, and at the same time providing an alternative access to the changing wings, for use when the players return 'dirty' from the playing fields. The general form of the plan was arrived at in solving this problem of 'clean' and 'dirty' circulation. Circulation was also required from all wings to the central tea lounge and balconies, with a separate service to the adjacent kitchen on the first floor. Access to the balcony direct from the playing fields was arranged by means of a reinforced concrete spiral stair.

A self-contained flat for the caretaker, with private entrance, is included within the main building and storage for equipment and maintenance machinery is provided in an ancillary building nearby, which is similar in character.

Construction. The clients expressed a preference for pitched roof construction.

All foundations are reinforced and rest on the surface of the ground, since it was found by trial holes and tests carried out by the Engineering Department of the University College that the bearing capacity was reduced with increased depth. The foundations are protected by concrete paving 3 ft. wide around the whole building.

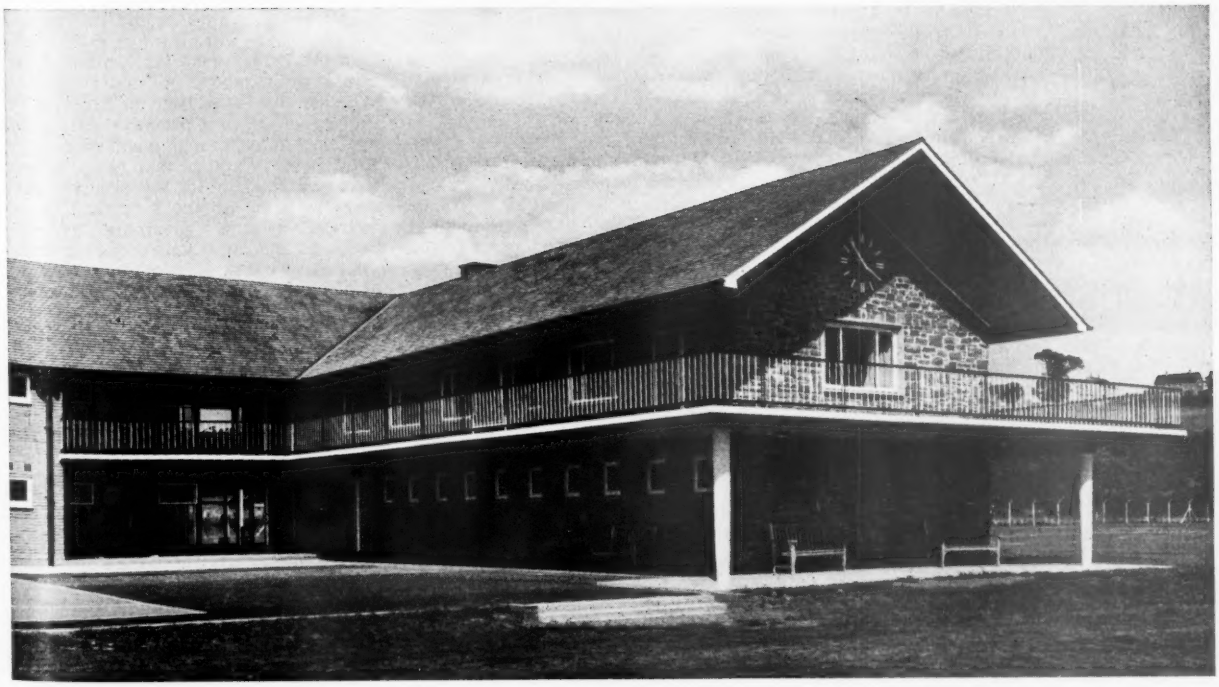
Water pressure of many tons per square inch called for 18 in. thick brickwork to the basement with 'Aqualite' tanking. Walls are 11 in. cavity brick (load bearing). First floor: 4½ in. r.c. with smooth soffit finish requiring no plaster. Metal shuttering was used. Roof construction is of T.D.A. trusses, purlins, and cedar wood shingles. A small amount of structural steel was used to span the large openings necessary for the glazed screens at the main entrance.

Internal Finishes. Fairfaced brickwork, with emulsion paint, for all changing wings, floors ¾ in. asphalt, glazed tiles to walls of showers, with anti-condensation paint on ceilings. Tea lounge: Muhuhu hardwood strip; ceiling consists of suspended 'V'-jointed insulation board.

Heating and Services. The heating installation is arranged on the low-pressure hot-water principle with 'Vectair' radiators, except in the changing rooms where pipe coils are used. The boiler plant in the basement has been arranged with the boilers inter-connected so that either boiler can serve the central heating plant and supply large amounts of hot water required for the showers. Both boilers are oil-fired.

The assistant architect in charge was Mr. D. E. Humphreys [*A*].

Sports Pavilion at Llanrumney, Cardiff



Report of a Debate on the Motion "that Systems of Proportion make good design easier and bad design more difficult"

Held at the R.I.B.A. on 18 June. The President, Mr. Kenneth M. B. Cross, in the Chair

DR. NIKOLAUS PEVSNER, C.B.E., M.A., F.S.A. [*Hon. A*], **introduced the subject**

God made the world in seven days. There are seven streams in Isaiah xi. 15, seven pillars in Proverbs ix. 1, seven golden candlesticks in Revelations i. 12, and seven locks on Samson's head—Judges xvi. 19, and since I have to start from the Bible tonight and get as far as Modulor in fifteen minutes, I have divided my introductory survey into seven paragraphs.

To start from the Bible is necessary. Without the Bible no Modulor. The *locus classici* are Wisdom of Solomon xi. 20: 'God has ordered all things in measure and number and weight', and Proverbs viii. 27: 'When he set a compass upon the face of the earth'. There you have from the outset your best authority for the faith in both arithmetical and geometrical relations.

The second paragraph takes us from the general to the specific, and from the Holy Land to Greece. Pythagoras was the first to connect the relations between the length of vibrating strings to produce the harmonies of octave or diapason, fifth or diapente and fourth or diatessaron with the harmony of the spheres. Plato suggested in his *Timaeus* that the world soul is divided according to these Pythagorean proportions. As the octave is 1 : 2, the fifth 2 : 3, the fourth 3 : 4, the major third 4 : 5, the minor third 5 : 6, musical beauty is expressed in the simple relations of sizes. The step to architectural beauty was not taken by Plato. But it should be remembered that the dimensions of Solomon's Temple, according to I Kings vi. 2, are 60 : 20 : 30 cubits, that is, 3 : 1 : 2. An accident, of course, for whoever wrote this can obviously not have known Pythagoras—or not an accident, but a proof of a primeval truth? Here, then, we are for the first time faced with our text for tonight. There is only one step from here (just a putting of two and two together, or rather of one, two and three together) to declare that a building designed on the principle of Pythagoras's tetractys must be as harmonious as the sounds of music based on the same principle.

Meanwhile, for paragraph three, we must move from Greece to Rome and from Plato to Vitruvius. Vitruvius's contribution is the humanisation of these laws of proportions which to the Greek governed the universe. You know that Vitruvius teaches (III, i, 1) that no temple can have a *ratio compositionis*, '*nisi uti hominis bene figurati membrorum habuerit exactam rationem*'. Watch this fallacy. A building to be beautiful must have the proportions of a well-built man. But who is going to tell us what is a well-built man? Is he Italian or, as they say, Nordic; slender or sturdy? What obviously is to happen is that he is constructed first according to whatever accepted laws of proportion and then called *bene figuratus*. But while Vitruvius leaves us in the dark as to his exact unit or module, he does at once proceed to subdivide it into tenths, eighths, sixths, fourths, thirds, etc.

The interest in the *homo bene figuratus* among thinkers of the Middle Ages—this is paragraph four—was limited. Their interest in the Bible and pagan philosophy was keen, and ever since a Christian philosophy existed, it accepted inspiration from Plato and Aristotle. And so St. Augustine in his *De Ordine* (II, 42; Migne XXXII, 1014) says that to behold the divine, human reason turns to music or to beauty, because in beauty are figures; in figures, dimensions; in dimensions, numbers. More simply still, Boethius speaks of *geometrica harmonia*, thus uniting geometry and music (*De Arithmetica* II, 49; Migne LXIII, 1158). No wonder that in medieval higher education music, together with arithmetic, geometry and astronomy, formed the quadrivium or the advanced group of the Seven Liberal Arts. In the end, to the philosopher of the High Middle Ages, it was evident that the artist works *secundum geometriam*. Professor von Simson, who has gone into these matters thoroughly, is of the opinion that Abelard was the first to recognise the dimensions of Solomon's Temple as Pythagorean (*The Gothic Cathedral*, p. 38).

So it would not be in the least surprising to find that the medieval master masons designed according to fixed proportions. Whether they did and how they did has been much argued. The Romantics of the early 19th century believed it, because they liked to believe in the magic of numbers. Later in the 19th century, Viollet-le-Duc wrote 30 pages on proportions in the *Dictionnaire* and Dehio did excellent work in 1895. But most of the serious literature has come out in the last twenty or thirty years side by side with much that proves the never-ceasing attraction which the subject holds for the lunatic fringe. It has certainly shown that there is something in the alleged concern of the medieval mason with fixed numbers and fixed proportions.

This distinction is made advisedly. For there are basically two possibilities, one arithmetical, the other geometrical. Of the arithmetical the Pythagorean numbers are the best-known example; the Golden Section is another, that is, a length of 5 divided into 2 and 3, or 8 into 3 and 5. The series can be lengthened interminably: 8, 13, 21, 34, 55, 89, etc. It is called the Fibonacci series. One can construct the Golden Section geometrically, but not without some complication. The principal geometrical methods in the Middle Ages are triangulation and quadrangulation.The earliest primer of medieval geometry for masons which we possess, Konrad Roritzer's *Büchlein der Fialen Gerechtigkeit*, Ratisbon, 1486, operates with quadrangulation, that is, establishes proportions by means of diminishing squares set diagonally one inside the other and each touching the middle of the sides of the larger one. It gives geometrically easy relations but arithmetically intractable ones. The relation is $1 : \sqrt{2}$. The earliest detailed minutes we have of medieval masons actually arguing proportions are of Milan Cathedral and date from the last years of the 14th century. Here the ground plan was based from the beginning on squares and the multiples of their side-length, but the elevation was discussed *ad triangulum* with arguments between the equilateral and the Pythagorean triangle. Simple measurements and simple constructions were no doubt based on the site primarily because they made setting out and constructing easy, but designers of medieval buildings were not always masons, and when the cleric designed—and we have ample evidence that he did, to the same extent that, say Lord Burlington designed—then the Pythagorean faith in beauty produced by numbers no doubt prevailed. Whether they were right in believing that the use of *unitates* produces beauty does not concern me, though it will concern you. All I have to add is that many attempts have been made in the last twenty or thirty years to draw up the numerical or geometrical systems governing particular buildings, but rarely with complete success. That may be lack of ingenuity on our side, or of understanding of medieval mentality, but it may also be much more simply because, the tools of the Middle Ages being what they were, we ought not to expect the accuracy in the execution of their own systems which we have a right to expect in Palladio or Inigo Jones. Perhaps one ought to advocate a Kon Tiki of medieval architecture and try to build something actually with medieval measuring instruments and methods. I would like to say a good deal more about that, but have no time.

So I can now proceed to the Renaissance, which is my fifth paragraph. Here I can be brief. That the Renaissance looked back to Greece and Rome is too familiar to need emphasis. So a continuation of Vitruvius goes without saying. In addition, much has

been made in the last thirty years, thanks especially to the Warburg Institute, of the Neo-Platonic brand of Christianity prevalent in 15th-century Florence and the Medici circle. No one should therefore be surprised to find Biblical, Platonic and medieval conceptions of beauty by measure also contributing to the Renaissance theories of proportion. Professor Wittkower has expounded them admirably and, to his own great surprise, with wide success among the young. How this success came about concerns again more you than me. All I have to say is that proportional canons based on the perfection of the 'human form divine' were, of course, much in prominence. Professor Wittkower illustrates them from Francesco di Giorgio, Leonardo da Vinci, and Fra Giocondo, neatly drawn to fit into circles, squares, etc., and he quotes Luca Pacioli as saying that 'from the human body derive all measures, . . . and in it is to be found all and every ratio and proportion by which God reveals the innermost secrets of nature'. The other Renaissance aspect is the Pythagorean numbers which Professor Wittkower has shown so admirably in Palladio's work, e.g. the Villa Malcontenta with plan sizes of 12, 16, 24, 32, that is, diapason, diapente and diatessaron. Unfortunately, however, the length of the main hall is 46 and not 48 ft., as it ought to be. Professor Wittkower says: 'I cannot offer a fully satisfactory explanation', and that ought perhaps to make us cautious.

But while we may here be face to face with a possible trap, there is one certain trap in the *mystique* of proportions, and to that I want to come now. I will illustrate it by reference to Professor Wittkower's commemorative paper on Inigo Jones given at the R.I.B.A. (R.I.B.A. JOURNAL, 3rd Ser., Vol. LX, p. 83, etc.). Here Professor Wittkower proves conclusively that Inigo worked with the greatest care in modules, each module being divided into 60 minutes. But where Professor Wittkower errs in my opinion is in calling this method of Inigo's 'the essence of his achievement'. I put it to you that it is not and that it has very little to do with his achievement. Professor Wittkower himself illustrates side by side with Inigo's most judiciously dimensioned drawings a design for the west front of St. Paul's which is without doubt badly bungled in its proportions, in spite of all modules and minutes. The trouble is that, as soon as one goes into minutes from modules pretty well anything is permitted, and the eye can no longer act as an aesthetic check.

So there is a first summing-up that I think one can risk. Ever since Palladio and Inigo the working methods of the architect could be by module or by genius. It is the eternal contrast of classic and romantic, Poussin and Rembrandt, Cézanne and Van Gogh. Does simple, perceptible geometry guarantee beauty? Does it avoid disaster? Is genius infinitely above it?

With that, I have nearly done. The situation remained unaltered to the year 1851. Then, as one of the effects of the Industrial Revolution, and of industrially produced architecture and design in particular, standardisation arose. That is my paragraph six, and it needs only a few words. The first case of architectural standardisation, as you know, was the Crystal Palace with over 6,000 columns 15 ft. long and 45 miles of standard-length sash-bars. The first case of consistent standardisation in design was, I think, the German DIN formats of 1922. But I may be inadequately informed there.

And so we have arrived at paragraph seven, and that, needless to say, is Modulor. You will no doubt want to talk about that. So I will say only that in my opinion it is a quack panacea. Le Corbusier the architectural genius suffers as much damage from Le Corbusier the journalist and the advertiser of himself, as does Frank Lloyd Wright the architectural genius from Frank Lloyd Wright the journalist and advertiser of himself. The Modulor book pretends to be all in all; it leaves no argument untried, it had to be discussed with the no doubt surprised Einstein apart from T.V.A.'s Lilienthal and 'Liberty Ship' Kaiser, and in the end it fails by the sales resistance it creates. On page 17 you find the need of a measure of length to equal that 'possessed by music'. That is Pythagoras. On page 56 you find the human body, a man 6 ft. or 182 cm. tall, as the universal measure, and on page 50 he appears for the first time, his arm raised to get up to 226 cm., and looking very much like Garth. Here, of course, re-enter Vitruvius, Leonardo and Fra Giocondo. But who are we to stipulate 6 ft. and to stipulate standard length of arms? And why a man anyway and not a woman?

Having made these statements, Le Corbusier on page 55 can show easily that foot to navel equals navel to top of head plus top of head to upraised fingers—on the proportion of the Golden Section. From here he gains access to the whole Fibonacci series. But on page 34 he also preaches 'that it is necessary to standardise', because 'a mass production mentality must be created', etc. The combination of the two leads to funny results. Le Corbusier on page 63 admits that his 6 ft. were not chosen as an aesthetic but as a practical optimum instead of a first considered 175 cm. He revised his *homo bene figuratus* to make 'manufactured articles capable of being employed' most widely or, to put it more bluntly, to sell Modulor in America.

To conclude, the trouble with Modulor is what was the trouble with Inigo's module and minutes, namely, that it sanctions such an infinity of lengths that anything can in the end be justified. 'Combinations are unlimited', Corb explains on page 84. And so they are. The basic tables on page 82 with the red and blue series, that is, the series proceeding from 113 and from 226 cm., both extended and contracted by the Fibonacci series, allow you to design exactly as you like—that is, well, badly or indifferently—and then to adjust what you have done by trifling degrees to comply with Modulor. I have watched such a case myself in South Africa. The architect was an ardent admirer of Le Corbusier and an honest man. He designed a house for himself and decided to do it according to Modulor. However, after some quizzing, he admitted that he had first designed it and then modulored it—seeing with delight that he had nearly done it right without the figures.

That is where we are left. I was asked to give an introductory historical survey. I have given it from Genesis to Modulor. I have shown that from Genesis to Modulor the *mystique* of numbers and figures has been believed in, and that it has often been made use of. But is there a guarantee to produce beauty by sticking to certain fixed proportions? With that question the neutrality of history can leave the platform to good honest partisan warfare.

MR. E. MAXWELL FRY, C.B.E. [*F*].

For the motion

My task is fraught with difficulty after that brilliant introduction, but I carry on where Dr. Pevsner left off, by submitting to you that in defending the motion it is unnecessary to build up a case for some universal system in which the rules of proportion are infallibly evinced to the great comfort of first-year students.

Nevertheless, the search for systems of proportion has some idea of universality as its object, because we are at heart idealists who are with difficulty satisfied with any but the most elegant of explanations for our existence.

I am really going to defend this motion as a working architect who examines this proposition from the point of view of its practicality for his own work and who has therefore come to think of it basically rather than turn to existing systems. I see it in this way.

As artists we have freely to offer ourselves to the world external to ourselves which we very often call nature, meaning by that the rest of the world outside ourselves. On the other hand, there is the reaction of our internal selves to the facts external to us: and, of course, the two are not separable. It is impossible for me to see anything except through me, and therefore everything I see is coloured by my own emotions. It is that scientific side of our nature, and science itself, which tries to separate them and to get things pinned down so as to observe them as though they were separate facts, and to make deductions from the observations.

That is one of the stumbling-blocks to a debate of this sort.

When we look around us in the world we see and subconsciously absorb the forms and the rhythms which we find, and we recognise and particularise certain forms as being beautiful, and those we examine more in detail and find that they have mathematical and geometrical relations that recur. Reasoning as we do with the reasoning side of us, we find mathematical bases for what we call beauty. But even though we do, those forms remain untouched because we are merely indulging in some abstract reasoning. The

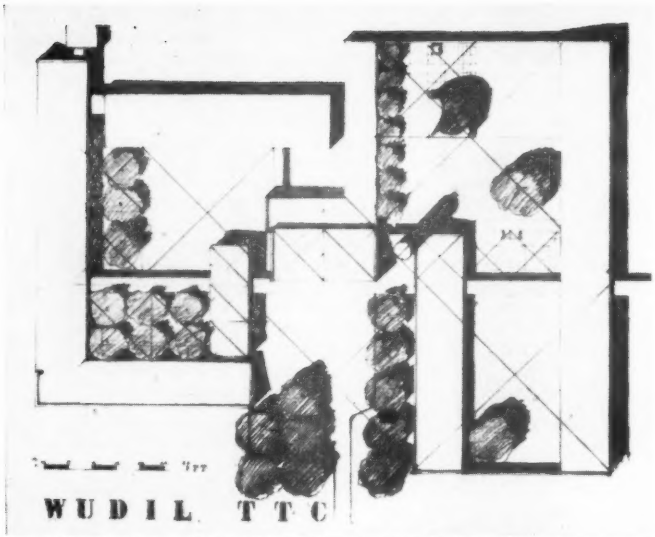


Fig. 1.'The first example is based on squares and their diagonals and concerns a Teachers' Training College now building in the semi-desert of Northern Nigeria. It is an enclosure in the burning waste about a well and a mosque. In both form and feeling it is a square: feeling infusing abstraction, you might say.'

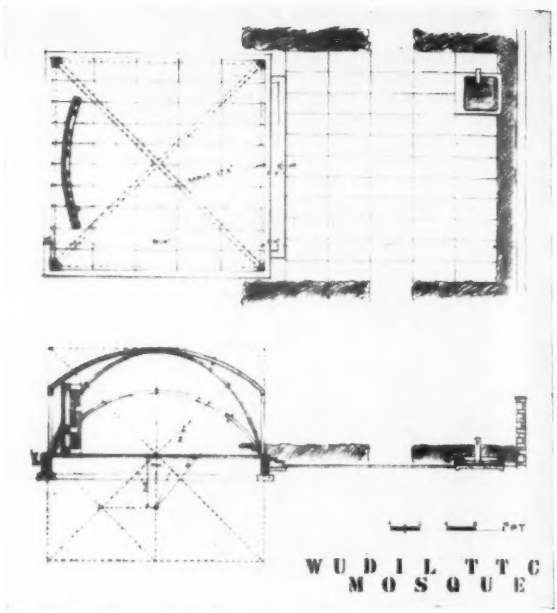


Fig. 2. 'The second continues the line of thought and feeling into the mosque, a nearly purely geometric figure producing a shell-like dome from the square.'

systems of proportion are forms of abstraction, but they are nevertheless useful.

The natural forms are, as I said, untouched by the exercise, but we are touched because we have thereby been enabled to look more closely and to feel more deeply.

Now there is this great difference between ourselves as artists and these natural forms, or nature itself. In nature there is no separation between the will or intention and the act or the form itself. Nobody designs the nautilus shell in nature. The thing happens. But we, when we come to design a nautilus shell, or some human approximation to it, must conceive of something and then, and laboriously, carry it out.

It is lucky for us that we carry within ourselves most of what we find in nature. There are two sides to us; there is a reasoning side, and there is this much more primitive side of feeling and emotion which would seem to indicate that when we set about designing a nautilus shell we are to some extent ourselves a nautilus shell. But we can also use the other side. I think it is quite unnecessary to claim, in defending this motion, that by means of numbers and scale we produce beauty; all that we have to claim is that a system of proportion is a help to us in refining upon our own feelings and our own intuitive design, that it is a help to resort to the results of observations of this mathematical basis which seems to run through natural form.

And so we come to our work as artists drawing mainly from our intuitive side of feeling and emotion, in which we have already subconsciously made our contact with nature, partly through normal reasoning powers, and then partly, though rather more coolly, applying what we know about the mathematical relationships in nature in order to refine upon our own design.

That, I think, is the case for systems of proportion—that they do help us to refine upon our design from the knowledge that we have amassed through our observation of nature. The other side, the subconscious side, is the deeper. But both are necessary for the difficult and exalted task of architectural design, and it is the peculiar power of the great artist to stand off from the work without loss of emotional concentration; to use reason to enrich feeling. If he could not do that, it would be useless, of course, to fiddle about with anything that came in the way of his intuition. But our work takes a long time to do, and we have this chance of checking up on it and of refining upon the first fine careless rapture.

That is my case. I would go on to say that there are heaps of different systems of proportion. There is not a universal one, though Le Corbusier has tried it out and it works for him personally very well indeed. But you can have other systems. I have a few which I shall show you in a moment or two; they are very simple ones, but they work for me fairly well, just as Le Corbusier's work's for him. The medieval builders had systems of proportion—triangles, for instance—which seemed to suit them extremely well. The Renaissance architects had squares, cubes, etc., which suited them very well. If you walk along the High at Oxford and go first into the University Church, you will find there a really beautiful example of Gothic building, and you can get the feeling of it and imagine very well what kind of proportions they evolved to help them in that kind of work. Then if you go on a few feet and walk into the City Church, there to your great surprise you find a big rectangular box but modulated with a skill that has made it the richest and most expressive interior; and obviously if there were a system of proportion used there it would have been something to do with squares. And why not? There is no reason why you should not have systems of proportion for every building; but for the universal system I am not prepared to speak.

(*Mr. Fry then showed four slides, two of which are illustrated above.*)

Nothing that I have said in favour of personal interpretation of the theory of proportion will affect the search for the universal answer, or prevent mathematicians from interfering with art; but then, we are all idealists.

MR. MISHA BLACK, O.B.E.

Against the motion

I feel sustained by Dr. Pevsner's impartial opening of the proceedings. I should be less emphatic in my opposition to the motion if it were less timid. If Mr. Maxwell Fry had worn the uncompromising guise of Vitruvius or Alberti I would still have opposed him, but should have applauded his conviction.

To believe in a thing which justifies creative action is half a step towards achievement, whether the theory be sensible or illusory. It is the full-blooded conviction which matters; a half-hearted belief is the death of art.

The Impressionists were no less good painters because their optical science was largely fictitious, and the genius of Le Corbusier continues to flower in spite of the mumbo-jumbo with which he has bedecked his Modulor.

But if the conviction is diluted to something which makes good design easier (as though design were a safe which could be cracked with the help of a system of numbers), then we have so little left of the original theory as not to warrant your support.

It would be easy, of course, as Dr. Pevsner has to some extent done, to ridicule the basis of the systems themselves if we coldly separated them from the sincerity of their progenitors.

I could, as Dr. Pevsner has already done, describe this fantastic 182·88 cm. which Le Corbusier tells us is the proper length of the good-looking Englishman, or I could tell you how, preparing for this evening, I strained to fit the Vitruvius circle, trying to reduce my height (by extending my legs widely apart) by the 1/14 which Leonardo da Vinci claimed is necessary to fit that mystic shape, only to find, to quote Sir Kenneth Clark, that 'from the point of view of strict geometry a gorilla might prove to be more satisfactory than a man'.

But I would not seek your votes from a platform of gibes; more serious matters are involved.

Architecture is already enmeshed in a thousand chains of cost, time and practicality. Today the proper discipline of building is often so multiplied that it becomes a prison for the imagination instead of a springboard for its release.

The Modular Society is actively about its business, adding new components of fixed size to predetermine our buildings; and now, in the narrowing area of freedom still left to the architect, the sponsors of the motion wish to provide us with a neat set of proportions to save us the trouble of determining our own dimensions.

These systems may be useful rules of thumb for those who understand their task as only that of providing the builder with his instructions with the minimum of trouble to themselves. But for those who, like the supporters of the motion, are architects of calibre, a system of proportions can today be no more than an easement in moments of stress, to be thrown aside when the creative imagination is magnificently at work.

I would gladly be convinced that a mathematical pattern governs all life in this world, that this pattern determines all energy and growth and is echoed in the sublime creations of men whether they be music, painting or architecture.

But to try to produce a work of art in the opposite direction, from the mathematical principle to the thing in being, is as fruitful as attempting to plunge oneself, fully grown, again into the womb.

Did Michelangelo measure out regulating lines for his 'Pieta' as he carved the solid stone while his death-bed awaited him? 'Has the absence of a measuring tool', as Le Corbusier has said, 'made the spirit of man any poorer? It does not seem so, for the Parthenon and the Indian temples, (and) the cathedrals . . . are there to mark man's progress along the path of time'.

If one believes in a system of proportion with passionate conviction it is as effective a goad as is an impassioned belief in God or in social welfare or in big business or in architecture. But that belief and the creative energy it releases has little, if any, relation to the validity of the system itself. Would his supporters claim that Le Corbusier is any better or worse an architect since he formulated his system?

You will, I hope, forgive my frequent references to Le Corbusier's Modulor, but that must inevitably be in our minds as we discuss the motion. Throughout his curious book (which is so difficult to handle because it is Modulor in proportion) he stresses that his system is only a tool and no short cut to architecture. To quote one of his frequent references to this: 'Some people are always wanting to buy, from the chemist or from the seller of dreams, a little gadget for making talent or genius. Poor fools! Nothing exists except what is deep within us and the Modulor only does the housework, no more.'

But if the system is of no help to the incompetent, how far does it really go in assisting an already sensitive designer with his housework? Is he really helped by attempting to position everything within the Modulor framework (cheating a bit as usual when bricks are involved)? Is the Modulor or any other system not, in fact, today a restriction, tending to impose a rectilinear grid before the designer's only too often rectilinear eyes?

For an architect or any other designer theory must always be checked against practice. My opposition to the motion must therefore rest finally on my own inability to use any established system of proportion.

You may reasonably comment that there is where the faults in my work lie, but you will not persuade me to forsake the simple 12-in. rule with its feet and inches developed from the arm's yard, the man's foot and the thumb, which provide ancient roots as organic in their conception as the new one of the man with his arm extended.

The relations of these dimensions are something which I shall settle, for better or for worse, for myself and vary them as often as I please.

But I must bring more reputable authority to support my view, so may I finish with a quotation from Francis Bacon: 'There lives no man on earth who can give a final judgement upon what the most beautiful shape may be.'

I cannot believe that any of the systems of proportion provide a final solution. I believe they are today all irrelevant to the design problems which we must resolve and therefore I solicit your votes against the motion.

MR. W. E. TATTON BROWN [*A*].

For the motion

When the R.I.B.A. chose Misha Black to paint all that was bad about systems of proportion, they looked around for someone to contradict him. The opposite of black is white, but somehow or other no White could be found, and Miss Bromley asked if Brown would do instead, so I was asked to speak for the motion.

I must confess that when I agreed to do so my position was brown—an intermediate position between black and white. Systems of proportion appeared to me neither wholly bad, outmoded and useless as Misha Black has so ably tried to have us believe, nor wholly good. But the more that I have thought and read about the subject, the more I am convinced that in their right place they are harmless and even useful.

My friend Max Fry has spoken of the geometric forms of nature. The existence of the spider's web, the sea urchins, the honeycomb, frost crystals on the window pane, all these are no less beautiful because they are capable of mathematical analysis. Similarly in the Arts, music is not spoilt for us by the knowledge that the notes from which it is built up are based upon a system of proportion. The ballet is nothing more than permutations and combinations of a small number of figures. Even painting at certain periods, in the Renaissance or in the Cubist period, is susceptible of mathematical analysis. When Sir Kenneth Clark points out that Francesco's painting is based on mathematical proportions, that does not spoil it for me. Similarly, when sculpture is shown to be based on geometrical shapes, I am not put off. Mr. Orfeur, in his paper* in November 1955, showed convincingly how curves employed in architecture and profiles of such things as Greek vases and maceheads and Doric capitals were derived from the interpenetration of cylinders or of cylinders and cones. One reason he gave for this was the primitive box of matches, the fire tool, which consisted of a series of cylinders which were rubbed together with tinder until there was a flame, which made everyone familiar with the peculiar shape obtained when one cylinder penetrates another; and he produced evidence that the Egyptians, as early as 3,000 B.C., were familiar with plans and elevations and the setting out of curves by means of off-sets and co-ordinates.

The interesting point is that when he wrote to Professor Lethaby of his discoveries, this is what Lethaby replied: 'I shall not object to the forms of Greek vases until it has been proved that they were tortured into shape by the application of some geometrical nostrum—by micrometer measurements—but that proof would then make them ugly to me, for that is not how I think beauty arises.'

At the back of Lethaby's mind, and secretly at the back of Misha Black's mind, there is an unconscious fear. They are frightened that somehow or other systems of proportion will succeed and will be a substitute for creative genius. In so doing, of course, they are falling into the fallacy of mistaking the instrument for the hand which guides it. They think somehow that the possession of a slide-rule will be a substitute for a structural engineer. Mr. Black, I think, is afraid that some day there

* 'The Geometrical Origins of Certain Curves in Pottery and Architecture', by R. F. Orfeur, published in the R.I.B.A. JOURNAL, November 1955.

will be a comptometer or a punched card system which will somehow make the industrial designer quite redundant, and that is at the basis of his objection to systems of proportion. I feel that we should think quite calmly and clearly on this matter and not be afraid of that. Le Corbusier says (and I make no apology for quoting almost what Mr. Black himself quoted) that a system of proportion is 'a working tool—a precision instrument, a key-board, a piano—a tuned piano. The piano has been tuned, it is up to you to play it well. The system of proportion does not confer talent—still less genius.'

I do not want to weary you, Mr. Chairman, or the members of this learned Society, whose knowledge is so much greater than mine, with a lengthy dissertation, and I am fortunate in being able to pick out a few points which Professor Pevsner has made. I think it is important that we should look at this question in historical perspective. As Professor Pevsner has said, the idea has been agitating the mind of man for some time, and Pythagoras and Plato were by no means the first to think in these terms. The importance of Pythagoras was that he established, as Professor Pevsner said, the relationship between music and space and the fact that an octave interval can be represented and demonstrated by striking a tune on a string tuned to the same pitch of 1 : 2 and a fifth 3 : 2, and so on, is frightfully important. That gave rise, of course, to far too much optimistic theorising and, as Misha Black has said, a lot of mumbo-jumbo and nonsense was built on quite inadequate foundations. I do not think that we need concern ourselves with all this *mystique* about the number 7 being at the basis of everything. But what I do want to point out is that it was this theory of proportions of Pythagoras and Vitruvius, Alberti, Leonardo da Vinci and Palladio which did produce the finest architecture that the world has ever seen. I do not think that can be easily laughed off by the other side.

In the 18th century the Rationalists destroyed the comforting belief in a Platonic universe. Hume and Burke demolished systems of proportion as a basis for design and Ruskin declared that possible proportions are as infinite as possible airs in music and it must be left to the inspiration of the artist to invent beautiful proportions, and so made way for the anarchy in design from which we are only now recovering.

This is the question that we should ask ourselves: Which fifty years produced the best architecture, the fifty years following Ruskin, William Morris and Lethaby, or any other fifty years in which systems of proportion were believed in and worked to? It is on the answer to that question that this motion hinges.

Already in our own age, in spite of the pseudo-scientific jargon of the stylists, the anarchy and licence of the brutalists, and Mr. Black with all his internal disorders, we are returning to the system of proportion not as a universal panacea but as a useful tool: Le Corbusier in 1922; Lubetkin and Tecton in 1935; I have just been over to the United States, and there all the serious architects, including Frank Lloyd Wright, are working on systems of proportion; Mies van der Rohe and Philip Johnson in 1957. So we see that there was only a brief period of some fifty years out of 5,000 years when people did not think anything about proportion.

In conclusion, I suggest that systems of proportion are a useful tool to three classes of persons: (1) to the critic in enabling him to interpret new works of creative genius in terms that we can all understand; (2) to the student, as a training of hand and eye in sensibility and in the study of the past; and (3) to the designer as a check after his first flush of inspiration. (I do not think it was a misfortune that the South African architect about whom we heard from Professor Pevsner had to alter his intuitive design by a few inches here and there. I think it shows how very important it is for all of us to go back after we have done our designs and use some system to check up with in order to see whether they are totally satisfactory or not.)

Mr. Misha Black did not give us much comfort. He did not say what he proposed to substitute for systems of proportion. He attacked the Modular Society and various other disciplines, but he left nothing but anarchy in their place. I was disappointed that we did not hear more about the biological approach to architecture, but I would give a reminder that our business as architects is to meet all man's biological needs, first of all those which he shares in common with the animals, and secondly those which are peculiar to him.

I suggest that systems of proportion are no less important than systems of drainage, and if we look at what patrons of our art spent their money on in the past, we see that they were content to spend far more money on properly proportioned buildings than on drains.

So I suggest to you that we should remember that in the last resort, when our buildings have outlived their biological functions and are no longer needed, what will decide posterity in keeping them alive and preserving them will ultimately be whether they are well proportioned or ill proportioned. For these reasons, I support the motion.

MR. PETER D. SMITHSON [*A*].

Against the motion:

I have four points and a conclusion.

My first point concerns once again the clarification of the general issue concerning proportion. This has already been discussed, but I think it has not come out quite clearly how distinct is the division between the two normal usages of the word. The first thing that proportion can mean is something that is divine—*a divine system.* That is, as Misha Black has said, something that is *believed* in. And it is the belief that validates it.

'Proportion' in this sense governs the whole organisation of the object.

The second thing that 'proportion' can mean is 'Charlie-ing up'.

'Charlie-ing up' means (from Le Corbusier's Modulor-man, nicknamed Charlie) taking what you have got, and, irrespective of its formal organisation, giving it, as it were, a face-lift.

Now, most people's attitude to proportion rests at a point half-way between these two subdivisions. Le Corbusier, for example, half-believes.

The actual quotation from which the title of this debate was taken reads, 'Professor Einstein declared, "It [that is, Modulor] is a language of proportions which makes evil difficult and the good easy." ' The words 'evil' and 'good' imply that *moral and non-aesthetic values are involved.*

But Le Corbusier also admits to façade 'Charlie-ing', and further, he admits to abandoning his dimensions if not convenient either dimensionally or personally. By 'personally' I mean where an 'art decision' is involved. He considers himself free to make an 'art decision' outside the Modulor.

In my second point, like Misha Black I come to my own beliefs. I personally am unable to *believe* in systems of proportion. I do not *feel* that a valid solution can be achieved through them. I believe them to be an evasion. Even the systems of proportion used in Renaissance buildings are, to use John Voelcker's expression, 'time-bound', although the buildings themselves are not. Perhaps I may quote from what the architects of the Renaissance did believe, although it has been covered, in part, by Professor Pevsner. From Wittkower, on Alberti:

'It is obvious that such mathematical relations between plan and section cannot be correctly perceived when one walks about in a building. Alberti knew that, of course, quite as well as we do. We must therefore conclude that harmonic perfection of the geometrical scheme represents an absolute value, independent of our subjective and transitory perception. And it will be seen later that for Alberti—as for other Renaissance artists—this man-created harmony was a visible echo of a celestial and universally valid harmony.'

And, on Palladio: 'Renaissance architects always regarded symmetry as a theoretical necessity in design, and we find rigidly symmetrical plans already with Filarete, Francesco di Giorgio and Giuliano da Sangallo. But in practice this theory was hardly ever applied. A comparison of a Palladian plan with a typical Renaissance building such as the Farnesina in Rome reveals immediately his complete break with the older tradition. It is the systematisation of the ground plan which became the distinguishing feature of Palladio's palaces and villas.'

Earlier Renaissance architects believed in symmetry, but they did not invest it with the magic with which symmetry and numbers were invested by Palladio and his circle.

My third point is that the usefulness of certain fixed dimensions, such as 4 ft. by

8 ft. panels, or brick dimensions for example, to which groups of components are related, cannot be denied. But the validity of dimensions like these rest outside the sphere of proportion, that is, outside the sphere of art decisions.

My fourth point is to put down some good reasons for doubting the efficacy of systems of proportion.

I put the obvious ones first:

(*a*) Architecture exists in space and not in the flat. Now, most systems of proportion are concerned with relating two dimensions from which, in the case of a plan the building is generated, or, in the case of an elevation, the components of that elevation are built up. In reality, architecture does not exist in the flat, but exists as a system of relationships, and all the diagonals and relationships in space between points which the rectangular control systems establish are obviously outside of the control system except in one regard—as a magical thing.

(*b*) The operation of laws of perspective that diminish and distort.

(*c*) Visual memory and additive images. There is no need to enlarge on this.

(*d*) 'Experience' is never direct, always loaded.

One does not record in an instant an actual thing.

One builds up an image in one's head from all the experiences that have accrued during one's visual and intellectual life. The way in which one 'sees' is not merely a matter of recording form, it is more like a Proust description of a place, which takes him 45 pages, because he refers to everything which has been triggered-off in his storage system by what he sees in front of him. When he puts his foot between the crack in the pavement in a courtyard in Paris, it evokes in his mind the sensation of long ago in Venice, and the Venice sensation streams through his head and lights up the sensation of that courtyard.

In conclusion, I think it reasonable to suggest that 'systems of proportion' only touch the fringe of the problem of values in architecture and, if anything, confuse the issue both of the creative process and the environment as received.

I should like now to take up some of the issues that have arisen in the discussion. It is not irrelevant, I think, to discuss why Professor Wittkower and his *Architectural Principles in the Age of Humanism* was such an outstanding success.

I think that the present interest in America in systems of proportion is just an academic post-mortem on our European post-war impulse, as also is this debate at the R.I.B.A. Proportion was important to architects, as a matter of tooth and claw debate, in 1948 and 1949. Then one could have had a debate in which people's actual beliefs were tested against other people's strident disbeliefs, rather than this somewhat polite exchange of qualified attitudes, where in secret we tend to agree with one another, at least as far as our rationally expressible views.

America is suffering from its Palladian revival seven or ten years too late.

The right time for the Palladian revival was 1948.

If one went to look at the Palladian buildings in 1948, one could not step an inch without tripping over an architect, and what were they all there for?

They were looking for something to believe in.

They saw in Palladio, as generations of Englishmen have, something that stood above what they were doing themselves.

It was necessary at that time to get back to something simple and comprehensible, and then from classical control move forward to a new sort of control.

For the present state of the Palladian Revival perhaps you have read of the Seagram Building in New York. As you know, that is a large building at the front of which is a 'pure' rectangular box, and all the untidy bits are put at the back—the enormous lift shaft, the lavatories, and so on. In a report in the architectural press there was a small passage describing why this is so. The reason, according to the architects, was to maintain the proportion of 3 : 5. Some days later I saw a picture, and I looked at the building and I thought that whichever way one put it round, it could not come up as 3 : 5. It occurred to me to count the mullions. I saw 31 mullions on the flat side and 19 on the short side of the front block, which gives the proportion of 30 : 18 (because there are more mullions than there are spaces), which is 3 : 5 *on plan*.

As far as I can see, this is a completely nonsensical reason for ordering a building's whole organisation, probably not even true.

I think that neither Misha Black nor I are against systems of control which arise naturally from a building's organisation patterns. We are against systems of proportion that claim universal validity, rather than validity at a particular time in a particular place.

Mr. W. A. Allen [*A*]: I wish to speak in support of the motion. It seems to me very odd that, in drawing the analogy between music and shapes by reason of their harmonies, the analogy is not carried to what seems to me to be its logical conclusion. We hear, for instance, of Le Corbusier talking in terms of the Golden Section ratio of 3 : 5, and so on, but, as Dr. Pevsner has reminded us, the musician works with a very large range of proportions. I think it would be an exceedingly deformed piece of music if one wrote entirely in fifths, although by combining them in various ways and using octave sets of them, one might make it bearable. But it seems to me that that is exactly what Le Corbusier does if he postulates and carries through a building on one set of proportions.

Surely the idea should be that one should become familiar with, and should become induced into habits of thinking in proportions just as a musician does. The musician does not compose a piece of music by thinking, 'I need a fifth or a third next, but it ought to be up a couple of notes'. Not at all. He works imaginatively in his mind, he works intuitively with a thorough background knowledge of the proportions he is handling, and often he will introduce a disharmony for some particular purpose.

It seems to me that one has to design in that way, that is, to handle different ratios and different proportions in a manner which eventually composes a building which has the beauty, the surprise and the excitement that so often endear the greatest buildings to us. But that implies that the usefulness of proportion and systems of proportion and of learning proportion comes in one's introduction to and training in architecture, and that it should become a habit of mind that the pencil should move in a sense of proportions as one designs. I do not think one should take too much account of the idea of perspective, for I strongly suspect that one makes allowances for that in the spatial appreciation. I think that is largely the case. I know from certain studies made at the Building Research Station that one cannot precisely appreciate departures from a perfect proportion. If, say, it is 3 : 5, one cannot recognise very small departures from that.

The main idea I am trying to put is that the important thing seems to be that one should have proportions induced in one at an early stage in training as a habit of thought, just as a musician is taught ratios and proportions in his music and then no longer uses them consciously but uses them subconsciously.

Mr. Alan White (Probationer): I do not speak on either side, but I feel that something should be added to both sides. It seems that the question of number has so far been regarded entirely numerically and not in its qualitative sense. If one looks at the rose, one sees the beautiful quality of fiveness in this plant, and this happens in many forms of nature. There is a quality of five, a feeling of fiveness, rather than a feeling of five numbers added on to each other.

I am much opposed to standardisation, which bedevils everybody's free expression in the present designing atmosphere, and I am horrified at the feeling that one day there might be standardised units of doors everywhere, so that one never goes through an individual type of door. But it seems that, as the factory system must have some standardisation, that standardisation should relate to the human being and not just to an arbitrary system which should be inculcated in youth. The Golden Section seems to be somewhat lost to glory, but in the human form—the upper arms, the lower arm, the fingers themselves—the relationship of the golden ratio appears very definitely, and obviously every human being has an individual relationship to this. It does seem that there is a need for standardisation in factory work and that the models at present seem rather arbitrary —and Le Corbusier's seems to be more arbitrary still. It seems that there should be a more living relationship to the human being.

Mr. D. H. McMorran [*F*]: This evening's meeting will in any case go down to posterity as the one at which you, Sir, were welcomed back from a tour of the globe, and I fear that it may also go down as being perhaps one of the woolliest evenings that we have ever spent here.

The motion is a very difficult one to speak to, because it contains quite a wrong and useless statement of the case in question. It says 'that Systems of Proportion make good design easier and bad design more difficult'. I should have been able to decide which speaker was on which side if they had addressed themselves to that proposition. To suppose that anything in this world makes good design easier is quite fallacious. If it was Einstein who said it, I am equally sure that it is nonsense. Good design is difficult and always will be difficult; bad design is only too easy and always will be easy—and no panacea will alter that.

I am astonished that none of the speakers who prepared their most interesting remarks have touched on the one point that to my mind matters, and that is that any design, whether a picture or a piece of sculpture or whatever it is, to be a work of art and to be worth looking at at all, must have unity. In order to achieve unity in any subject, some system of harmonious proportion must go through it, otherwise it is not a unity. That is the purpose of these so-called systems of proportion. If they do not achieve that, they are no good. But it is not easy to apply them. You have got to conceive your unity, and you can perhaps make some use of rules that you have in your mind or may have read. If you can do it, you are jolly lucky and you may produce a work of art. That is the central point; unity is the object. A system of proportion may help towards it. Therefore, in spite of the terms of the motion, with which I disagree, I speak in support of it.

Mr. L. N. Fraser [*Student*]: I have not heard the word 'scale' mentioned tonight. Scale is an important matter on which we ought to dwell. I am not sure whether I am speaking for or against the motion. The world in which we live looks like the world it is because the average height of man is 5 ft. 8½ in., and his eyes are at about 5 ft. and when he sits down his knees are at sitting level, and so on. The widths of roads are dictated in the end by the width of the human being sitting in a vehicle. If suddenly everyone were 8 ft. tall, we would have to alter the entire system of buildings, roads, and everything else. Therefore, it seems to me to be completely self-evident and not worth debating that you must have a system of proportion allied to a scale. Architects use a scale and that, as we have heard, is derived from the human body, as it must be. Therefore, obviously you must have a system of proportion related to an absolute scale of the human body.

One speaker has referred to music, talking in terms of analogies. It is a well-known fact that Beethoven was a magnificent mathematician and if you dissect his music you find that it is all related to proportion, but what he did—and that was his genius—was to take a certain theme. The whole sonata system is very mathematical. Then he got tired of the theme and kicked it here and there a bit and nearly lost it, and then got it back again. That is the exciting part of it. Of course, music is dynamic; it moves forward all the time. It is said that a building is dynamic if you walk round it. It seems to me that a good building is something that has these essential proportions in it, and if you walk round it and look at it in three dimensions you see these proportions and then lose them, and then they are with you again—and that makes a unity.

Professor R. Wittkower: I apologise for taking part in this cut-and-thrust debate, since I am not a member, but I felt that to a certain extent my spirit was, as it were, hovering over this audience, and I was quoted so often that I felt I might say a few words. It is rather difficult in a time of three minutes to take part in the discussion and to clear one's thoughts, but there are one or two remarks I should like to make.

One idea has been repeated constantly and that is the concept of the search for a universal system of proportion. That, of course, is a fallacy. There were never any universal systems of proportion in the past. It was only that the people who practised those systems believed that their own systems were universal systems, and that, I think, is a very important point. We are in a particularly bad position as regards proportion because we have a period behind us which we cannot forget, and it is always difficult—nay, impossible—to rub out the past. Two hundred years ago this discussion would have been impossible. The discussion is only possible because we had the 19th century and we had the period of Rationalism, to which reference has already been made, which destroyed the belief in absolute values.

It was very interesting to me to see that my friend Smithson approached the whole problem entirely from a pragmatic point of view. I think that is typical of the situation today. We cannot find a position of belief as individuals because a broader foundation is lacking, and I suppose that as long as such a position cannot be won back again on a broader level, a level of universal belief, it is no good the individual architect fighting for a system of general values. That has been made clear in the discussion.

As regards Le Corbusier's Modulor, I heard Le Corbusier say, in a discussion when he was attacked, 'Le Modulor, je m'en fiche'—which was, of course, more than he wanted to say; but it shows that Le Corbusier himself is in the position of Mr. Tatton Brown, between black and white, and as long as that is the situation, I think it is very worthy for individual architects to try to recapture some of the obvious values which scale, proportion, unity and all those things bring about. But it is no good trying to recapture what one might call pre-naïve positions, positions which no longer exist.

I think that is perhaps all I should say now. I would have liked to defend myself against a number of points that have been raised, but in view of the time, I will say no more.

Dr. Pevsner: May I say one thing? I wonder whether Professor Wittkower is aware of the fact that the first syllable of his name is, of course, only a North German dialect word for 'white'?

Mr. James C. Kennedy [*A*]: As a rebel, I am afraid, against any government, I am against systems of proportion—any systems of proportion. I have been so ever since my first year at an architectural school, where the very earnest young studio master tried to teach me his system of proportion and, of course, I got it wrong, and was failed in my first design subject.

I hope you will forgive my recalling to you that most tenth-rate comedians start their patter by saying 'As I was coming to the theatre this evening . . .' and then go on about some accident; but as I was coming to this hall this evening to hear this star variety show—which has been slightly deadened by the knitting needles going very hard—I was on the No. 53 bus coming up Regent Street and we were held up by an enormous car—a really enormous car. It was out of all proportion. In the front seat was a young lady who, I was told by the bus conductor, was called Diana Windows, or something like that. I am not sure who this lady was, but I was looking down upon her from the bus top—and so I am against all systems of proportion.

Mr. Alexander Flinder [*A*]: Ever since I tried to read Oscar Faber's *Reinforced Concrete Simply Explained*, reinforced concrete has always been a perpetual puzzle to me. But there is one thing I should like to know. Although I fight shy of adopting other people's methods of proportion, I wonder whether any of the speakers tonight have ever evolved their own methods of proportion. Any designer who designs for a number of years ultimately acquires a number of personal gimmicks, and although he may not publicise them, he finds them aids to himself.

Mr. Smithson said that most established methods of proportion were related to the plan, but I have always found that, despite Faber's book, the weights, the masses as such, have always been of help to me in designing, particularly, for instance, the relationship of the fulcrum to a mass on the one side and an equal amount of volume on the other side—the position of the fulcrum in relation to the masses, although the shapes of the masses may be different. This is a personal system which I have always found of advantage. From time to time, having completed a design and in trying to check it, I translate the masses into pounds, and then I take the fulcrum as possibly the point the eye reaches and then work back on this, and I find time after time that, although it may not exactly work out, it helps.

I should like to know whether any of the

speakers have their own personal systems as aids to architecture in an easy way.

Mr. Derrick Lees [*A*]: As one of the young men influenced by proportion, I should like to say why I think proportions are related with the divine, and secondly why it is important to integrate the parts of a building to the whole.

Fundamentally, we have, shall we say, a square, the second simplest possible geometric shape, and when we draw a square as accurately as possible we are tracing a line round an idea. That idea of a square is exactly the same in any part of the universe, and at any period of time. A square is always a square, and is therefore eternal. All mathematical formulae are eternal in the same respect in that they always remain the same.

A system of proportion is based upon a series of numbers relating to each other in progression; and a system of proportion—say 2, 4, 8, 16—is always the same in any part of the universe, in any period of time, and is therefore eternal.

When we incorporate geometry or systems of proportion into buildings, we are incorporating elements of simplicity and eternity. I think it is important that parts of buildings should relate to the whole building not only scientifically but also mathematically. It is possible for us as architects to incorporate into our buildings series of dimensions which relate to each other, therefore developing relationships which are harmonic.

Mr. John Summerson, C.B.E., F.B.A. [*A*]: I am rather surprised that, although the name of Le Corbusier has been mentioned frequently this evening, the name of Sir Edwin Lutyens has not. He is a very interesting case. He is a case of a man who used and believed in his own system of proportion, and I think it is relevant to ask why he did so.

Lutyens flourished at a time when, anyway in England and I think abroad also, there was very little interest in the tradition of designing on systems of proportion. Lutyens took it up, I think, in about 1904 or 1905, and gradually evolved his armature of plans. Why did he do so? I think the answer is quite simple to anybody who has read the life of Lutyens. He devised a system of proportion because it was fun (by him); and I think that would have been his short answer. He certainly never regarded it as of universal value. In fact, when his son, Mr. Robert Lutyens, published a little book on this system of proportion, I have been told that Sir Edwin did not like the idea. I believe I am right in saying that he said to Mr. Robert Lutyens, 'You are trying to explain me'. That is an interesting, isolated case of a man who needed and enjoyed a system of proportion, and that, together with a great deal of other evidence that one could easily collect, seems to show that the whole subject should be investigated on the plane of the psychology of design. That puts it on a plane so different and so remote, with so little data attached to it, that we simply cannot deal with it. But that really is where the problem of proportion rests.

There is this long tradition of divine proportion which can be elucidated to some extent historically, but what we probably need is an elucidation from the other end, from the psychological end.

If we think of Lutyens and Le Corbusier, there are two architects of quite phenomenal powers of invention. I do not think that anybody would argue that in either case there are not phenomenal powers of invention. Alas, we do not really know what we mean when we say 'powers of invention'. We recognise them, but what is invention? We do not know. In any case, these two men, with great inventive powers, found that they both needed and enjoyed—and I stress both those words—systems of proportion devised by themselves. I do not think we can explain the matter any further until we have a much greater command of what invention means, what design means, what the whole psychology of design consists of.

Mr. Athol W. Brentnall, A.R.A.I.A.: I should like to speak in favour of the motion as a visitor from an allied association. I feel that a certain amount of confusion has arisen between the exact meaning of proportion and a definite measure. Maybe one can trace that to Le Corbusier, with 'Charlie'—I do not know. I was confronted with this sort of case the other day. I had to take my car to the Continent and, in filling in a form to go through the French Customs, I had to put in the length of the car, and I did not know whether to put it in feet or inches or to use the red or blue scale. I think the same thing applies here. Proportion has nothing to do with any linear measurement. The whole advantage in some system of proportion, whether it be your own system or any other system, is that one must not use it as the basis of the design. I believe that all good design is purely emotional, and that the system of proportion can be used merely as a guide, as one uses a 12-in. boxwood scale. One can use some other means of measuring proportion relationships between the various parts of the structure with the idea that the whole design, if it has some mathematical relationship, will hold together. I think that is the crux of the matter.

The President then put the motion to the meeting, and declared that it was lost, with 48 *voting for and* 60 *voting against.*

Open Letter to Members in Local Authorities

From the Chairman of the Ad Hoc Committee on Representation of Salaried Architects and Structure of the Profession

THOSE FAMILIAR with the aims of the Ad Hoc Committee will realise that we are constantly debating whether, if a pressure group representative of the entire profession could be formed, it would find itself uniquely well placed to ensure that architects are properly employed and rewarded by the society they serve. None of us on the Committee has ruled such a pressure group out of court, but candidly nothing in our studies so far suggests that it is the lack of one that is the root cause of the problems we are required to examine. The development of an aggressive British Architectural Association, wielding a big stick in the manner of the Transport and General Workers, is in our view some long way off, and it would be a pity if anyone had illusions about this.

Nevertheless, in the field of negotiating machinery (which it is as well to remember need not be our only weapon) there is everything to be said for improving what already exists. Local government machinery is a case in point. Those directly concerned will know that this negotiating machinery is being overhauled, and now is the time to ensure that, in whatever emerges, the major professions shall be singled out and recognised as a clearly defined class, whose interests shall not this time be submerged by the sheer weight of non-professional numbers. There is every reason to think that our colleagues in the major professions are as determined about this as we are.

They are, however, better equipped than we are in that, if we can all get our voices directly heard at the negotiating table, they have to hand the necessary societies from whom representatives could be appointed to serve, whereas we have not. Our profession has the County, City and Borough Architects' Association, but this is limited to watching the interests of chief officers and deputies and there are good reasons why it cannot be expected to expand its terms of reference to include the remainder. Who then shall speak for those below deputy level? Many would say the R.I.B.A., but the objections to that are the usual and by now familiar ones: (1) The Royal Charter precludes it (as for that matter the Law Society's prevents their 'representing' solicitors), (2) R.I.B.A. membership includes architects in every kind of occupation, whereas any society seeking recognition as a negotiating body would need to be limited to local government officers.

Our Committee is thus led to the conclusion that we are likely to want to encourage before long the establishment of a local government architects' society to cover

assistants, but closely associated with the R.I.B.A. Such a society might well find enough good works to do to justify its existence in any case, but appointing representatives to negotiate for assistants would be among its more important functions.

It would, of course, be unrealistic to look for any radical change in the balance of power among all the associations concerned in local government, simply by reason of our getting the professions established on a proper footing. Everyone knows that on the staff side, N.A.L.G.O. is predominant, and there are many who would not wish it otherwise. At any rate, our society would clearly need to be thought of as supplementary to and not a substitute for the overall machinery, which has after all been laboriously built up through long and sustained effort.

We shall want to look into all this more closely, for the pattern of negotiating machinery is still in the melting-pot and no one yet knows precisely what can be made to emerge; but local government architects are invited to give the matter some thought and to send their observations to the Secretary for Professional Relations, R.I.B.A., 66, Portland Place, London, W.1, and to indicate whether they would become members of such a society if it were established.

RICHARD H. SHEPPARD [F]

A Vast Expanse of Paper

By Eric Ambrose [F]

A CONSIDERABLE PART of my time is spent in what I like to believe is 'simplification'.

I read a mass of information produced by experts in many fields, am happy if I understand a quarter of it, and then boil down that quarter into a residue capable of rapid digestion by my busy readers.

Day by day the mass of material which reaches me increases in bulk and obscurity. It comes in heavy packages from the ministries, learned institutions, technical associations and research bodies. It showers on to my doormat from manufacturers, retailers, advertising agents and publicity experts.

Much I would like to put aside for reading at leisure, but I have to be as ruthless as all the other members of my profession, and so I hurl the bulk of this curiously shaped literature into my waste-paper basket.

I have heard of offices where a battery of efficient young ladies operates smoothly and without fuss, dropping each new delivery into its correct niche in elaborately simplified filing cabinets, ready for extraction at the touch of a button on the principal's desk, or the hoarse shout of a senior assistant in full-size travail. These, alas, are not of the 'common herd'.

The majority of us can spare neither the space nor the labour to solve this long-standing problem, yet an extraordinary amount does receive efficient treatment, and a high proportion can be recovered on request.

There are, of course, specialist firms who offer to supply our wants. One will install his own collection of data, and keep it up to date. Another will provide fairly comprehensive catalogues which are soon *out* of date. A third will send a folder so that we may insert the standard-size hand-outs he will dispatch from time to time.

Our reactions to all this vast expanse of paper might be twofold. First, that 'simplification' by 75 per cent would reduce the contents to a useful, readable residue; secondly, that some advertising and publicity agents have neither troubled to find out how an architect *thinks*, nor, in some cases, ever met one in the flesh. A very large proportion appear to view the 'typical architect' as a cross between an all-important tycoon, and a moronic nitwit possessing a mental age of eleven minus, who, upon being shown a list of important architect-customers, will immediately rush to the telephone and place the necessary order.

There is, of course, no more critical body than architects. We are trained not only in the science of construction but in the art of design. We have learnt to appreciate craftsmanship and we are not prepared to be impressed, nor will our appraising eye be caught, by an inferior herald devoid of craftsmanship.

We are unimpressed by fact-hiding blurb, and yet we are continually assailed by it.

The night after I had finished reading Lord Alanbrooke's diary, I had a very pleasant dream. I saw, and heard, Sir Winston Churchill lunching with one of his war-time advisers. 'This is a perfect analysis of the problem', said the great man to the proud and brilliant scientist who sat beside him. 'Please take it away and reduce it from seven million words to seventy, and let me have them before tea.'

I would like to be able to say just that to a great number of those who hurl at me this vast expanse of paper. I would particularly like to say it to some of the scientific bodies who are kind enough to include me on their lists of recipients for the fruits of countless hours of honest, learned toil—fruits I would eagerly enjoy if only I knew how to peel them.

I would like to say it to the ministries, to the institutions, and to every learned society which insists on wrapping up its pearls of wisdom so securely that they cannot be found.

Indeed, we are fast reaching a state of affairs when specialists will be so narrow in their outlook, and so obtuse in their technical jargon, that not one in a thousand will be able to read a scientific report dealing with any matter not strictly within his own specific channel, because simplification is considered to indicate a lack of erudition.

An appreciable percentage of publicity must be devoted to 'goodwill', so that we may remember an important trade name. Here, where it is essential that we should not be irritated, the over-written message defeats its object. We are not much impressed by the big drum and the bugle—a method of proclamation we like to think disappeared with the last medicine-man at the country fairs.

For us, the role of the advertising agent is immensely important. Generally speaking, he performs his difficult task superlatively well, but he should not fail to remember we do not always 'think as other men'.

I can best prove my point by indicating how I believe some have suceeded. Comparisons are odious and I do not want to suggest that all those I have passed over have failed in their object.

Turn over the advertisement pages of the April issue of the R.I.B.A. JOURNAL and allow your eye to linger where it will. Perhaps you will pause on page 8 and read the contents of the Burgess Products label. I did.

No doubt the Crittall advertisement on page 10 will attract—and perhaps irritate you because a good photograph has suffered by the placing of the lettering.

I believe you will pause at page 24 to read the Hiduminium message, and you will give a passing glance to John Ellis on page 33.

'Marleyrail' on page 39 tells its story clearly, and your sense of fun will cause you to examine the Carlite drawing on page 40.

I think you will certainly read all the excellent lettering on the Asphalte Mine-Owners' pamphlets, and will probably jot down the address for future reference.

But I wonder what your reactions will be when you look at the perspective drawing of a building which you are told 'has been judged typical of the finest contemporary building design'?

No doubt it is, but we like to make our own decisions, and in a profession like ours there will always be dissentient voices, so that this type of approach may well prove a double-edged sword.

Some time ago, a firm which had sold water-pumps to the trade and profession with conspicuous success, was unsuccessful in its attempt to reach the general public, although the pump was 'better and cheaper than any comparable make, as a careful perusal of the technical details proved'.

I claim little credit for the obvious suggestion that the firm should offer 'clear, cool, sparkling water at the turn of a tap' to a non-technical, mid-summer readership.

Is it too much to ask that the same approach, in reverse, be offered to the technical reader so that he may have plenty of clear, cool, sparkling technical information when he is parched for knowledge?

Are there no general rules, which, if observed, would avoid many of the errors resulting in ignored advertisements, when the proffered information is vitally important?

With immense personal courage, I offer the following analysis.

We like clear, precise language, and abhor blurb.

We are a little cynical, and so the modest statement tends to impress us.

We like facts and figures, but we do not like to be reminded too often that the really worth-while jobs seem to go to the same architects. On the other hand, we get very angry if we see a building illustrated in the Press without even a mention of the architect's name, whatever we may think of him or his creation.

We enjoy a little humour, because building these days is often a sad, ulcerish affair.

We are 'suckers' for anything new—provided it is backed by authenticated facts and figures—and we like to have an inkling of cost.

We understand building language, and we can read drawings more quickly than the advertiser can *write* his description. We dislike, equally, being talked down to, or immersed in a sea of unfamiliar jargon.

We like precision, and we respect the man who, having something to tell us, really knows his subject.

We are not good readers, but we do a lot of scanning. We cannot always remember the names of twenty or so journals which cater for our needs, and so we tend to describe them in rough classifications, such as 'The one you get sent free but are expected to buy, which comes flat and generally has a pink cover.'

We *do* glance at advertisements, and our assistants rarely fail to draw our serious attention to those which have attracted *them*. (I am amused by the oft-heard suggestion that it is the big executive-architect whom the advertiser has to reach, when we all know it is only the great man's assistants who, having time to read, draw his attention to the useful titbits *they* have selected.)

So much for the approach through the Press. Is there nothing which can be done to relieve the Great Postal Assault?

I suggest there is—quite a lot.

The wastage through direct mail advertising is admittedly enormous. Many 'static' catalogues are, of course, invaluable, but a large proportion of the voluminous, specialised matter should only be sent to us when we actually need it, and not just willy-nilly. Several firms already subscribe to this principle, asking us to return a postcard if we are interested in their product, yet this is only a part-solution. We need a reference at our finger-tips, so that the postcard—or telephone call—can be invoked the moment we require the information.

I am going to suggest that the trade adopt a card index system which will provide us with a digest of the all-important information they want us to have, ready at a moment's notice to be expanded by the dispatch of detailed literature which *can be thrown away after use*.

The system must be fool-proof, so that no time is wasted in filing, and no card can become lost.

I saw the basis of such a method used during the war by a doctor who wanted to keep his X-ray records filed on his desk. I am of the opinion that it could be adapted in the following way for our own use.

Each card bearing the manufacturer's basic information to measure 6 in. × 4 in. Before printing, the top edge to be given nine $\frac{3}{16}$ in. dia. perforations. According to the particular trade classification, 7 of the 9 holes to be cut into channels reaching the edge of the card.

Each card, on receipt by the architect, will be placed in the filing box, *in no specific order*, but under one of (say) 7 main headings readily distinguished by colour.

To extract those cards in any specific classification, two metal knitting needles are inserted into the appropriate holes, and the cards lifted out in one operation. Cards with both holes cut into channels will remain in the box.

Starting with only 7 main headings, and 9 perforations, one lifting will permit 252 separate classifications. The biggest general catalogues are content with about 40.

Too revolutionary? Too simple? Or do the knitting needles frighten you? Then increase the diameter of the holes and use pencils.

Of course we should need the blessing of the B.S.I., but no one would be out of a job, and the demand for the services of the advertising agent or publicity expert would be even greater. The financial saving in reduced waste-paper-output would be tremendous, and we architects could look forward to useful results with all the latest information always available.

Is there nothing we can do to reduce the prolixity of the important but often unreadable scientific reports to which I have referred?

I see no reason why a brief résumé cannot be appended to each, with clear indications of where greater detail can be found in the body of the document. This exercise might itself draw attention to unnecessary verbosity and lead to simplification.

Not very long ago, at the surprising request of the editor of the Hungarian 'R.I.B.A.', I wrote an article for his journal. What knowledge I possessed of the particular subject had been gained from the résumés, written in French, provided with each issue and read in conjunction with plans and elevations.

That the 'troubles' broke out four days after I dispatched the article was probably pure coincidence and is no argument against 'simplification'—or even an appeal for 'revisionism.'

I hope this article is itself a simplification and that you will not accuse me of the self-same verbosity I have attacked.

The fact remains that if the present spate of paper inundation continues to increase, then we architects will soon have to declare our offices major disaster areas.

Correspondence

THE COLONIAL LIAISON SECTION, B.R.S.

The Editor, R.I.B.A. Journal

SIR,—May I correct an inaccuracy in your report of the discussion at the British Architects' Conference? In the August number of the JOURNAL, on page 415, I am quoted as saying that we—that is the Colonial Liaison Section at the Building Research Station—are not an official agency and that most of our inquiries come from private architects.

The Section is an official agency in that it is part of the B.R.S.; its head, the Colonial Liaison Officer, Mr. G. A. Atkinson, B.A.(Arch.) [*A*], is also Housing Adviser to the Colonial Office. Its members include architects, scientists, and a town planner, all of whom make regular visits to tropical and sub-tropical areas. The cost is met from funds provided under the Colonial Development and Welfare Acts. Inquiries about building problems come, roughly in order, from official departments, architects, engineers, contractors, and manufacturers overseas or from those in this country with oversea interests. Many inquiries are received from architects at home and abroad who have been commissioned by public authorities overseas; but the Section is also frequently consulted about problems relating to private or commercial building.

One of the main functions of the Section is to disseminate information and to answer specific questions on building in tropical and sub-tropical areas. This task can best be discharged by maintaining the widest range of contacts so that experience may be collated and passed on to others. This is done by correspondence, visits and the issue of publications. In addition to occasional technical studies the Section issues a series of 'Colonial Building Notes'. These circulate to official departments, firms, and the professions, which are concerned with tropical building; they cover a wide range of subjects related to the problem.

Mr. A. G. Church [*F*] who made the plea at Oxford that the B.R.S. might like to consider obtaining information from architects practising in the tropics might like to know that this is already being done. Contacts have been established in most parts of the world, including Singapore, and the Section obtains much useful information from the profession in this way.

Yours faithfully,

WILFRID M. WOODHOUSE [*A*]

OUR ARCHITECTURAL INHERITANCE

SIR,—In my contacts with young architects and with students working with me during holidays I find that an enthusiastic devotion to modern architectural ideas is combined with almost complete ignorance of the problems and ideas of the preceding generation of architects. Indeed, this lack of understanding amounts to near contempt. Those who made the most vital contribution to our architectural inheritance, in which this generation shares, seem to be known only by the less worthy output of their declining years.

The lack of continuity implicit in this ignorance is not peculiar to architecture or to this day, but since each generation in its thinking makes some contribution to architectural development it seems a pity that it is not more effectively passed on.

A bridge could be thrown across this gap if our schools would make use of older men, say between 50 and 60 years old, who could give a short series of lectures each year on the changing influences and standards which have occurred during their own experience. Our young architects would then have a chance to know what had been going on when they came in and could go forward with a slightly enhanced vision.

Yours faithfully,

DANIEL ROTH [*A*]

REDUNDANT SITES

DEAR SIR,—The drastic reductions in the Services may well mean that many buildings and much land will shortly be put up for sale to the public.

Before this takes place it would be advisable for these properties to be first offered to the local authorities in whose area they are situated. Thereby the authorities would be given the opportunity of planning these sites for housing, schools, playing fields, etc., after which the remainder could be disposed of at a profit and as part of a carefully thought out town planning scheme.

It is hoped that in districts where such Government owned properties are situated the local authorities will ascertain the possibility of future disposal as soon as possible, as some Government owned land is already being put up for sale direct to the public.

Yours faithfully,

SIDNEY LOWETH [*F*]

PLANNING PERMISSIONS

SIR,—Apropos the correspondence in the JOURNAL following upon Mr. Jeffries' letter in the June issue, would not the simpler and more logical course be for the legislature to ordain that all designs submitted for planning permission are to be signed by an architect?

One can hear the weighty tones of the Lord Chief Justice declaiming upon Mr. Crosby's proposal that the Planning Officer should practise automatic discrimination in the passing of plans on the grounds not of quality of design but of the person who submits them.

Yours faithfully,

PERCY H. WINTER [*F*]

Practice Notes

Edited by Charles Woodward [*A*]

IN PARLIAMENT. Service Departments (Land and Property). Asked if he would give consideration to publishing a list of buildings or land, belonging to any of the three services, which will become redundant owing to the reductions in the Armed Forces, giving ample notice, so that public authorities and responsible institutions or associations will have the opportunity of acquiring them before they are otherwise disposed of, the Minister of Defence replied: The Service Departments will inform the local planning authorities of all land and property which is no longer needed for Government purposes. There will also be adequate advertisement and notice of surplus property to be sold in the open market. (2 August 1957.)

Letter Boxes. Mr. Shepherd asked the Postmaster-General if he was aware that the letter boxes now being fitted to some new doors at almost ground level cause postmen unnecessary fatigue; and whether he would take powers to give three months' notice of cessation of delivery unless provision is made for letter boxes with normal access.

Mr. Marples: I am grateful to my hon. Friend for raising this matter, in which I am very interested, but at this stage I would propose to proceed by persuasion. The British Standards Institution and the Council of Industrial Design are already co-operating with me on the question of positioning and design of letter boxes, and when I have their advice I intend to seek the co-operation of architects, local authorities, the building trades, and the public generally.

Mr. Shepherd: While appreciating my right hon. Friend's desire to do this by persuasion, may I ask if he will make sure that, if persuasion fails, this lack of consideration will not be a burden on the Post Office service by adding to the cost of running a delivery service of letters?

Mr. Marples: I agree that some letter boxes now in existence cause the postmen great difficulty. For that reason I thought it best for the Post Office to design its own type of letter box and then send the details and drawings to architects. (24 July 1957.)

Nash Terraces, Regent's Park. Sir A. Bossom asked the Lord Privy Seal what proposals the Crown Estate Commissioners have to demolish some of the best examples of the work of the famous architect Nash, around Regent's Park; and to what extent it is their policy to maintain the façades and have modern flats constructed behind, as has been done in Eaton Square.

Mr. R. A. Butler: The new Board of Crown Estate Commissioners is carefully considering the future of the Nash terraces around Regent's Park but no decisions have yet been taken. My hon. Friend can rest assured that the possibility of building modern flats behind the existing façades has not been overlooked. (1 August 1957.)

PLANNING APPEAL DECISION. This was an appeal by the applicant against a condition made by the Watford Rural District Council in an outline permission requiring 'the submission and approval, before development is commenced, of plans indicating the connection of the proposed house to a public sewer'.

The site of the house is within about 220 ft. of the local authority's sewer.

The applicant submitted that it is an improper use of planning powers to make a condition where other legislation is appropriate and applicable, namely Section 37 of the Public Health Act, 1936; that it is an attempted abrogation of a possible right to compensation under contemporary legislation and that it is imposed contrary to the advice given by the Minister in his Circular No. 58/51.

The Council submitted that it was its general policy to require new development in areas served by main drainage to be connected to a public sewer. The Council considers cesspool drainage to be unsatisfactory and without justification in a built-up area, and in imposing the condition the Council had paid no regard to the provisions of other legislation affecting drainage. The local planning authority had considered from the legal aspect the question of the inclusion of drainage conditions in planning consents and was satisfied that the condition under appeal was in order and a proper condition to impose.

In allowing the appeal the Minister noted that there were exceptional circumstances which, in the Council's view, justified the granting of permission in this particular case, subject to certain conditions. With particular reference, however, to the condition under appeal, the Minister was of the opinion that, in view of the specific powers available under the Public Health Acts, there is no sufficient justification for the imposition of this particular condition. Accordingly the Minister discharged the condition. (THE ESTATES GAZETTE, 3 August 1957.)

(*Note.* Section 37 of the Public Health Act, 1936, provides that where the local authority require a drain to be made to connect to a public sewer which is *not* within 100 ft. of the site of the building and is at a level which makes it reasonably practicable to construct a drain to connect to the public sewer, then the authority must undertake to bear so much of the expenses reasonably incurred in constructing, maintaining and repairing that part of the drain which is *not* within 100 ft. of the sewer. This is subject to the intervening land being land through which the person concerned is entitled to construct a drain.

Circular 58/51 was referred to in the JOURNAL for October 1951, on page 480, with extracts from the Memorandum entitled *The Drafting of Planning Permissions*, and the following extract seems to be relevant to the case quoted above:

'Although the power given to local authorities to grant permission "subject to such conditions as they think fit" is not expressly qualified in the Act, there are none the less certain limitations which should be observed. The Town and Country Planning Act is an Act for regulating the development and use of land; and the powers which it confers are only available for those purposes. Conditions which have no relevance to planning have no place in a planning permission; planning powers ought not to be used as a sort of universal longstop when other powers are not available. Moreover, it will often be found that matters which are of proper concern to planning are already regulated either by statute or common law. In such cases it is generally undesirable to seek to cover the same ground by attaching conditions to a planning permission. The existence of the condition will not free the developer from his other responsibilities; if the requirements are the same the condition is unnecessary, while, if they conflict, confusion will result. Exceptionally there may be circumstances which make it desirable to supplement a specific control (e.g. where the relevant legislation is out of date, or where preventive action is preferable to reliance on the statutory remedy). But, in general, the powers of the Planning Act ought not to be used to duplicate or alter the impact of more specific legislation, particularly if the result would be to deprive the developer of compensation to which he would otherwise have been entitled. Further, the enforcement machinery provided by the particular legislation will generally be better suited to the purpose for which it was specifically designed than the enforcement procedure of the 1947 Act, which was framed to deal primarily with contravening development.')

NEW STREETS ACT, 1951 (AMENDMENT) ACT, 1957. This Act received the Royal Assent on 6 June. It provides amongst other things for a discretionary power for local authorities to refund part of the sums paid to them where part of the street works have been carried out to their satisfaction otherwise than at the public expense. It enables a local authority to enter into an agreement under section 146 of the Public Health Act, 1875, with a developer after some payments have been made under the New Streets Act, 1951. Provision is made for the registration in the local land registers of notices served by the local authority upon persons proposing to develop land, stating the amount to be paid or secured in advance of building work, and of any sums paid in respect of such notices.

The Act will come into force on the expiration of three months from 6 June.

CLEAN AIR ACT, 1956. The Department of Health for Scotland has issued a Memorandum of Smoke Control Areas (H.M.S.O., price 1*s.* 3*d.* net) and a Memorandum on Miscellaneous Provisions of the Act. (H.M.S.O., price 8*d.* net.)

These documents contain advice to local authorities on the creation of smoke control areas and give details of the provisions of the Act which came into operation on 31 December 1956.

BRITISH ASSOCIATION OF FIELD AND SPORTS CONTRACTORS, LTD. The Secretary of this Association states that its members are experiencing a growing tendency among local authorities and others to issue invitations to tender without supplying bills of quantities. It is pointed out that such practices defeat their own object as contractors must, in order to reimburse themselves for the additional work and costs, advance their tender prices to cover their unsuccessful as well as their successful tenders. It follows, therefore, that such contracts have in their ultimate prices the costs of several separate bills of quantities instead of one.

In small contracts of, say, well under £3,000 the point is not important, but the Association has recommended its members to return invitations which are not accompanied by bills of quantities.

LONDON COUNTY COUNCIL. London Building (Constructional) Amending Bye-laws, 1957. The Council have given notice that the Bye-laws have been amended in respect of the external and internal cladding of buildings, the protection of structural steelwork and matters incidental thereto. The amended Bye-laws came into operation on 1 September, and copies can be obtained from the Record Keeper at the County Hall, London, S.E.1, or from Staples Press, Ltd., Mandeville Place, London, W.1.

The amending Bye-laws are as follows:—

London Building (Constructional) Bye-laws, 1952—Amending Bye-laws, 1957

Made in pursuance of the London Building Acts, 1930 to 1939

1. These bye-laws may be cited as the London Building (Constructional) Amending Bye-laws, 1957.

2. In these bye-laws the expression 'principal bye-laws' means the London Building (Constructional) Bye-laws, 1952, made by the London County Council on the 21st day of October 1952, and which came into operation on the 1st day of January, 1953.

3. Part III (materials of construction) of the principal bye-laws shall be amended by the addition thereto of the following provision:—

'*External and internal cladding*—3.21 (1) Any cladding to a building, whether applied externally or internally, shall be of such materials, of such thickness and fixed and supported in such manner as the district surveyor may approve, having regard to the particular circumstances of the case.

(2) Where such cladding is external, any metal dowels, fixings and supports of the cladding shall be of stainless steel or non-ferrous metal (other than aluminium or zinc);

Provided that other materials for dowels, fixings and supports may be used if the district surveyor is satisfied that those fixings are adequately protected from corrosion by virtue of their position in the work.

(3) For the purposes of this bye-law, cladding shall mean a facing or architectural decoration additional to the required statutory construction but not so bonded to that construction as to exert common action under load.'

4. The following bye-law shall be substituted for bye-law 6.02 of Part VI (the structural use of steel) of the principal bye-laws:—

'*Protection*—6.02 (1) Subject to the provisions of Part IX (fire-resisting construction), where a column or beam is situated wholly or partly in an external wall or wholly or partly within a recess in a party wall, that column or beam shall be solidly encased with brickwork, concrete or other similar material at least 2 in. in thickness;

Provided that where the encasement of a beam or column is exposed to the weather, that encasement shall be:

(i) of concrete not less than 3 in. in thickness; or

(ii) of brickwork, stone or similar material, properly secured, if the column or beam is protected from the effects of corrosion by—

(*a*) concrete not less than 1½ in. in thickness on the edges of the flanges and not less than 2 in. in thickness on the faces of the flanges but in no case less than 1 in. over any projecting rivet-heads, bolts or splice-plates, so that the total thickness of encasement to the column or beam is not less than 4 in.; or

(*b*) such material as the district surveyor may approve as being durable, impervious to moisture and in all other respects suitable, having regard to the particular circumstances of the case, and the thickness of the brickwork, stone or similar material is not less than 4 in.

(2) Where structural steel may be adversely affected by moisture from the adjoining earth, it shall be solidly encased with concrete at least 4 in. in thickness.

(3) For the purposes of this bye-law, any concrete used in the encasement of a beam or column shall be not inferior in quality to that designated Grade III in bye-law 3.07.'

5. As from the date when these bye-laws come into operation, bye-law 6.02 of the principal bye-laws shall be revoked.

6. These bye-laws shall be construed as one with the principal bye-laws.

Book Reviews

An American Architecture: Frank Lloyd Wright, edited by *Edgar Kaufmann*. 12¼ in. 269 pp. incl. illus. New York: Horizon Press; London: Architectural Press. 1955. £4 4*s*.

Mr. Lloyd Wright has long been an architectural portent and so remains, as he is himself, of course, by no means unaware.

The latest of his publications (now about as numerous and various as his buildings) gathers up a finely representative miscellany of his writings and constructions, aphorisms, epigrams, plans, elevations, perspectives, photographs and *obita dicta* under the title of *An American Architecture* and the editorship of Mr. Edgar Kaufmann. And a most instructive and revealing book it is—a coruscating Wright anthology which, with its 250 fine illustrations, is produced with all the handsome generosity of layout that one would expect.

Over half a century of revolutionary pioneering is depicted with Frank Lloyd Wright steadily in the centre of the stage as leading innovator all the way.

'Here, in the Larkin Building in Buffalo in 1904, was the first great assertion that the machine in the artist's hands is a great tool and will give works of art. But only if it is in the hands of the creative artist. The speech I made about the machine in 1901 at Hull House, pointing out the machine could be used for freedom, to emancipate the artist from the petty structural deceit of making things seem what they are not—well, Jane Addams wrote an editorial about that speech. It was printed in the ARCHITECTURAL RECORD in 1908 and reprinted in Europe.

'It is interesting that I, an architect supposed to be concerned with the aesthetic sense of the building, should have invented the hung wall for the w.c. (easier to clean under), and adopted many other innovations like the glass door, steel furniture, air conditioning and radiant or "gravity heat". Nearly every technological innovation used today was suggested in the Larkin Building in 1904.'

And indeed one is endlessly astonished to find how many of the accepted architectural commonplaces of today were in fact first proclaimed or demonstrated by the G.O.M.

Yet it would have been agreeable had his acutely logical thinking and fertile ingenuity been less explicitly underlined, not because of any shadow of doubt, but simply because what one discovers or infers for oneself carries more weight and conviction than anyone else's 'say so'—no matter how high the authority may be.

Albert Einstein also had ideas, but a different outlook:—

'Everyone should be respected as an individual, but no one idolised. It is an irony of fate that I should have been showered with so much un-called for and unmerited admiration and esteem. Perhaps this adulation springs from the unfulfilled wish of the multitude to comprehend the few ideas which I, with my weak powers, have advanced.'

Yet perhaps the method of presentation is really of no great moment, what matters being that knowledge and wisdom shall be spread as widely and as quickly as may be to the gain of all.

And this ejaculatory quick-firing book is tight-packed with both, though many pronouncements will provoke vigorous reactions, as of course they should.

'Five lines where three are enough is always stupidity. Nine pounds where three are sufficient is obesity. But to eliminate expressive words in speaking or writing—words that intensify or vivify meaning—is not simplicity. Nor is similar elimination in architecture simplicity. It may be, and usually is, stupidity.'

'Form, and such style as it may own, comes out of structure—industrial, social, architectural.

'Principles of construction employing suitable materials for the definite purposes of industry or society, in living hands, will result in style. The changing methods and materials of a changing life should keep the road open for developing variety of expression, spontaneous so long as human imagination lives.'

'Do you think that, as a style, any aesthetic formula forced upon this work of ours in our country can do more than stultify this reasonable hope for a life of the soul?

'A creative architecture for America can only mean an architecture for the individual.'

'Organic', 'Integrity', 'Simplicity', remain the Master's master words—and it is impressive to realise how consistently faithful Frank Lloyd Wright has been to his own early ideals throughout his long and lustrous life.

CLOUGH WILLIAMS-ELLIS [*F*]

Specification 1956, edited by *F. R. S. Yorke*. 13 in. 1333 pp. incl. illus. Architectural Press. 1956. 30*s*.

The Concretor and Reinforced Concrete sections have been rewritten, Piling promoted to mention in the list of contents, and the rest brought up to date in the usual way.

It seems a pity that in recent years the special articles on specific building types have been abandoned, presumably for want of space; and that the self-effacing page-headings have not been abandoned in favour of something more conspicuous in the outside margin of the page. The price has not increased.

The Architects Year Book, No. 7. Edited by *Trevor Dannatt*. 10 in. 254 pp. incl. illus. Elek Books Ltd. 1956. 42*s*.

There is a feeling of satisfaction in adding to one's shelves another Year Book, that quintessence of all that has appeared in the glossy magazines. Yet this year, as one turns its immaculate pages, doubts arise. There is much good material, but the total impression is scrappy and disjointed. One wonders why this building or that article was chosen rather than another, and the contents do not seem to add up to a consistent attitude of mind towards the year's work.

The issue is divided roughly into three parts: theoretical, descriptive and technical. The theoretical section contains essays of very divergent character, some detached and scholarly, some frankly *engagé*, and all escaping the paternal net of Sir Herbert Read's introductory article. There is a study of Ignazio Gardella by Signor Argan, of a kind that is too rare in this country, though it suffers from being a fragment of another work. Julius Posener also has a pungent essay, and the English work at C.I.A.M. 10 is illustrated for the first time en bloc.

In the descriptive section the English work comes off best, because an obvious attempt has been made to choose distinguished examples, whereas the foreign buildings seem to be selected less for their quality than because they are not well documented elsewhere. The reduced importance of the technical section suggests a loss of faith in the indivisibility of the mechanical and the aesthetic which informed earlier numbers.

The fragmentary quality of this volume is probably not due to any change in editorial policy. Eight years ago to be modern was to be partisan, and it was still possible to appeal to functionalism in an afterglow of the 'thirties. But today, with the contemporary style superficially accepted, vitality resides in splinter groups searching for a new doctrine. This difference is most clearly seen if we compare the 1949 with the present issue. The publication of Clive Entwistle's project for the Crystal Palace competition had a big impact on young architects, and the Year Book seemed to be out in front. This year the L.C.C. solution is published—a solution whose difference from the earlier one cannot be explained simply by a more modest programme, and which invites comparison. Not only does this number make no such comparison; it does not even mention a scheme which it did so much to publicise.

Such a refusal to establish connections and to define an attitude seems typical. For all its virtues, the Year Book ought to decide whether to become just another digest of increasingly indigestible material or to select its material according to some explicit and coherent point of view.

A. H. COLQUHOUN [*A*]

Heating and Air-Conditioning of Buildings, by *Oscar Faber* and *J. R. Kell*. 9½ in. 3rd. and revised ed. xii + 611 pp. incl. illus. Architectural Press, 1957. £3 3*s*.

Although several reprints have appeared since the second edition in 1943, the present completely revised version of this well-known textbook was long overdue and is therefore particularly welcome and valuable.

Lichtarchitektur—Licht und Farbe als Raumgestaltende Elemente (Light and Colour as Spatial Elements) by *Walter Kohler*. Illus. selected and arranged by Wassili Luckhardt. 11 in. 232 pp. incl. pls. and other illus. Berlin. Ullstein. 1956. 68*s*.

Most architects who have ever been engaged on systematic work in one of the building sciences, must have often wished that they had time to produce a book in which they could give creative expression to the technical knowledge acquired in the course of their work. It is natural that the few attempts that have been made should be in the field of lighting and colour, but isn't there an equal void to be filled in the field of acoustics for a work which would demonstrate the effect of acoustic science on architectural form?

In this book a real attempt is made to tackle the problem of lighting from an integrated viewpoint—an amalgam of the lighting engineer's and architect's approaches. It is divided into three main sections. The first is a collection of photographs illustrating internal and external lighting of buildings with a few striking pictures inspired by the 'science-fiction' approach to light (strain patterns under polarized light, microphotos of crystal structure, astronomical and moving-light pictures) which Moholy Nagy and György Kepes made familiar years ago. In relation to the text the collection is curiously lopsided and leans heavily on artificially lit examples. In at least one case this has led to a serious omission. The view of Saarinen's M.I.T. chapel interior shows Bertoja's shimmering golden altar reredos in artificial light. There is no hint at all of the subtle source of natural light—a horizontal slit in the undulating brick wall through which reflected light from the water in the moat outside is thrown in gently changing patterns on to the ceiling. The black and white photographs are generally good; the coloured ones less so, the best being those which show the use of colour in factories.

The second part deals with fundamental optics. There is a good discussion of eye-sensitivity, psychological and physiological factors involved in colour appreciation, 'colour-temperature' of radiant sources, brightness measurement and daylight factor problems. It is a curious paradox that in many lighting questions engineers are far more quality-conscious than architects. Where an architect might be satisfied to make a simple calculation, say, for light intensity required for a given task, the engineer will take quality as well as quantity into account. Dr. Kohler, for instance, illustrates Kruithof's 'comfort-curve', in which light intensity is related to the 'colour-temperature' of the source in such a manner that for a given temperature maximum and minimum intensities are given within which comfortable vision can be expected.

A serious defect of this section is the absence of any detailed discussion of the transmission of light through glass. After all it is rarely that any light, either natural or artificial, reaches us in a building except through this 'architectural filter', which one cannot use to give optimum quantity and quality of light unless one knows something of its properties. Amongst these are its transmission (quantity and spectral quality), the effect of diffusing, prismatic and obscuring surfaces, the heat-light relationship in absorption of energy (the American work of Parmelee might have been quoted here) and such optical phenomena as partial spectral reflection obtained by the thin metallisation of surfaces or 'blooming' with interference layers.

The third section is devoted to detailed discussion and illustrations of actual lighting installations and requirements for individual building types. Again there is a concentration on artificial light at the expense of natural, but in spite of this the section is valuable and has many excellent photographs and drawings.

Most architects will find this book an eye-opener if they consider lighting science incompatible with quality judgment—in fact they may begin to have a guilty conscience. As a stimulant, it should prove most valuable, but as a practical guide it will need to be supplemented with more detailed work.

THOMAS A. MARKUS [*A*]

Japanese Temples and Tea-Houses, by *Werner Blaser*. 12½ in. 156 pp. incl. illus. New York: Dodge Books. 1957. $12.75.

During the last few years, at least eight books on different aspects of Japanese architecture have been published in London, New York, Germany and Japan. Last year, the French monthly *L'Architecture d'Aujourd'hui* devoted an issue (No. 65) to Japan. All described, in varying degrees of detail, traditional Japanese architecture. Built of timber and raised off the ground, with large sliding window-walls glazed with waxed paper and roofs usually thatched, it exhibits a sophisticated simplicity which is influencing the work of a number of Western architects, especially in the United States. (It should, but rarely does, influence the architecture of other Asian countries, or even of present-day Japan.)

Werner Blaser, a Swiss furniture designer now teaching at the Hochschule für Gestaltung, Ulm, has assembled a fine collection of photographs—some in colour—and drawings of Japanese temples and tea-houses from the 15th to 18th centuries. Their architecture owes much to the rise of Chinese Zen Buddhism, which attained perfection in the Japanese tea-drinking ceremony. The Zen Buddhist priests were landscape-gardeners, master-builders, and craftsmen. Using local materials, they built temples and tea-houses and, drawing inspiration from the earlier Shinto temples, evolved a truly Japanese style of architecture.

Werner Blaser describes the philosophy of Zen Buddhism and the significance of its tea-houses, usually separated from the central temple-compounds. He explains the aesthetic consequence of the Asian manner of sitting on the floor on mats which gives, through the consequent absence of furniture, different spatial relations and, because of lowered eye levels, a new perspective. He gives an account of the effect of climate in traditional design; of the patterning of floor plans through the use of standard-sized mats ('Tatami'); and of the traditions of Japanese landscape-gardening. In all, he has prepared a commendable survey of traditional Japanese architecture.

G. A. ATKINSON [*A*]

Raumprobleme im Europäischen Städtebau (Space Problems in European Town Planning), by *Wolfgang Rauda*. 10½ in. 103 pp. incl. pls. and other illus. Munich: Callwey. 1956. DM. 17.50.

This book attempts to illuminate its subject by two means—in words and in pictures. There is a text in 13 chapters dealing with the philosophical and historical problems of space, and a set of illustrations with captions, some of which grow almost into short stories. Starting from pure philosophical premises (such as abstract universal space in contrast to space created by man), problems like 'the perception of space in various historical epochs' and 'the relation between visual and inner conception' are examined. Pursuing these investigations, a whole host of terms is introduced: metric as opposed to rhythmic conception, and free-rhythmic in contrast to controlled rhythmic order. This part of the book is thorough and successful. But although the author purports to consider contemporary space ideas, he does not in fact show how far these principles might help to solve our own town planning problems.

There are seven schemes of actual town centres and ten dealing with housing estates. But Professor Rauda has not detected in the contemporary town the spiritual power of its period, as manifested in the past in the Acropolis or the medieval church, the renaissance palace or the Baroque setting of the absolute king. The new mobility, the enormous scale, the new building production, the modern human outlook create space problems of their own which are hardly touched upon by the author. He shows, however, three examples of recent housing estates: the Tusculano Quarter in Rome, an estate in Rotterdam near the Alexander Polder for 30,000 people, and a scheme for Basle. These indicate new ways in which our housing problems could be solved successfully.

Many of the illustrations and plans are extremely fascinating.

ARTHUR KORN [*F*]

Analysis of Structures, by *M. Smolira*. 9¼ in. vii + 173 pp. text illus. Concrete Publications Ltd. 1955. 18*s*.

The method of analysis of building frames described in this book is claimed to be the simplest and quickest method yet devised, especially for continuous frames with curved members and for Vierendeel trusses. It depends on visualising the deformed shape of the structure, which reduces the likelihood of mistakes.

Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialised branches of research and will willingly answer inquiries.

The Director, The Building Research Station, Garston, near Watford, Herts.
Telephone: Garston 4040.

The Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow.
Telephone: Busby 1171.

The Director: The Forest Products Research Laboratory, Princes Risborough, Bucks.
Telephone: Princes Risborough 101.

*The Director, The British Standards Institution, 2 Park Street, London, W.*1.
Telephone: Mayfair 9000.

*The Director, The Building Centre, 26 Store Street, Tottenham Court Road, London, W.C.*1.
Telephone: Museum 5400 (10 *lines*).

*The Director, The Scottish Building Centre, 425–7 Sauchiehall Street, Glasgow, C.*2.
Telephone: Douglas 0372.

Structural Insulation. Now that the Thermal Insulation (Industrial Buildings) Bill has become an Act, a brochure entitled 'Structural Insulation' comes opportunely, as it brings together useful information which should be of assistance to architects concerned with the design of industrial buildings to be erected after the 'appointed day'. The brochure is a reprint of articles originally published in THE INDUSTRIAL HEATING ENGINEER and written by C. L. Haddon, M.Sc. The contents include sections on the fundamentals of thermal insulation, the properties of insulating materials, the selection of insulating materials, the economics of thermal insulation, and the practical application of insulating materials.

In the section on economics it is stated that 'there is an excellent rough rule for calculating the saving of coal and coke used in factory heating, namely a reduction in 'U' value of 1·0 of the wall or roof results in a saving of 5½ tons of coal per 1,000 sq. ft.'

The brochure is illustrated with tables, photographs and drawings, and may be obtained from the publishers, Messrs. John D. Troup Ltd., 90 High Holborn, London, W.C.1.

Inserting a Damp Proof Course. One of the difficulties of dealing with old property is that probably there is no damp proof course, with consequent dampness in the lower part of the walls. The provision of a d.p.c. was not made compulsory until the latter part of last century, although THE BUILDER states that the earliest reference in its pages to a d.p.c. was in 1843, as follows; 'It is the common practice in Hamburg to apply asphalt to the brick and stone ground line of buildings by simply placing a ½ in. layer of that material over such line; this prevents capillary attraction.'

Damp proof courses *can* be inserted in old buildings, but it has been a somewhat laborious and costly business; now—after five years of research and tests—machines have been introduced by Messrs. Dampcoursing Ltd., that will do the job more quickly. The Brooks 'Major' machine has a rotary blade that cuts into the mortar joint and brickwork to a maximum depth of 5 in., it can also be adjusted to cut upwards into the mortar joint from 1¼ in. from the floor to a maximum of 5¾ in. from the floor. The 'Major' can cut at the rate of 12 ft. per minute. In the case of a 13½ in. wall the cuts are made from each side to the maximum penetration of 5 in. and then the 'Senior' machine, with its reciprocating blade, cuts through the central uncut piece of wall. The 'Senior' is also used primarily for cutting corners. The 'Major' can be powered either by a petrol or diesel engine or an electric motor; the 'Senior' is electrically driven.

At a demonstration of the machines Ruberoid Astos asbestos damp course was inserted in the chase cut through the wall. Where possible and appropriate the skirting board is taken down in a room and the cut made behind it, thus obviating structural and plaster damage, and disturbing the occupants to a minimum degree. Further information can be obtained from Messrs. Damp-Coursing at 83 Lambs Conduit Street, London, W.C.1.

Korodur Flooring Material. The choice of a flooring material, especially for industrial premises, is difficult because several requirements need to be fulfilled. The number of possible materials has now been increased by the introduction into this country of Korodur, produced by the firm of Westphal Hartbeton Gesellschaft after years of research. The material takes the form of special granular materials of selected sizes which can be closely compacted and bound together with the minimum of cement. Tests, and some twenty years' experience in Continental countries, are stated by the company to support their claim that the flooring satisfies the following requirements; resistance to abrasion, indestructibility, freedom from dust, imperviousness to water, and resistance to heat, frost, oil and petrol.

To install a Korodur floor a 1 in. layer of cement mortar of special consistency is spread over the structural concrete subfloor and on this 'buffer coat' is placed the superhard Korodur layer in a thickness of ⅓ to ⅔ in. The material can also be had in the form of tiles.

The installation of Korodur floors requires special machinery and can be carried out in any part of the United Kingdom under the supervision of Industrial Flooring Contractors Ltd., 11 Poultry, London, E.C.2.

Tretol Specification Handbook. Messrs. Tretol Ltd. have issued their *Tretol Specification Book* in its second edition which has been completely revised and its format enlarged to conform with B.S. 1311: 1955. The handbook is intended to give guidance, in the form of specifications, to the practical aspects of waterproofing, protection and maintenance of buildings. The first section deals with protective and decorative painting; the second with essential treatments and additives; and the third (final) to the various uses of bitumen membranes for waterproofing.

The sheets are inserted in a two-pronged loose-leaf cover, so that further sheets, when issued, may be inserted. The handbook will be sent on receipt of the applicant's business card or letterheading, addressed to Messrs. Tretol Ltd., Tretol House, The Hyde, London, N.W.9.

D.S.I.R. Report 1955–56. The Committee of the Privy Council for Scientific and Industrial Research have issued their report for the year 1955–56. It is recalled that, following a committee of inquiry, the Advisory Council were replaced by a new Research Council on 7 November 1956, under the chairmanship of Sir Harry Jephcott, D.Sc., F.R.I.C.

The work of the Building Research Station naturally claims most attention from architects, and this section of the report very briefly outlines what items of research have been concluded or are in process of investigation in the five main fields of materials, structures, soil mechanics, efficiency of buildings and user requirements, and building operations. On materials it is noted that the gradual depletion of supplies of gravel, for example, in the London basin must increase the trend towards the use of lightweight concrete over the years, and much of the knowledge needed to further its use is now available. Good lightweight aggregates can be produced from some slate wastes. Improvement of old property often depends on the elimination of rising damp in walls having no damp proof course and the Station is indebted to more than one local authority for providing facilities for trials of methods of doing so.

Commenting on reinforced concrete construction, the report states that there is a trend in multi-storey housing to give the space-enclosing elements a structural function, and that the use of load-bearing cross walls as party walls between flats or maisonettes has architectural and economic advantages. Tests have been made on full-size and model walls to determine the effects on wall strength, deformation under load and mode of failure, of varying the wall dimensions and reinforcement, the influence of window and door openings being also examined. One interesting feature of the results is that, for a particular height and thickness, the ultimate load that can be supported per foot length of wall increases with the length of the wall. Allowance for this is introduced in the draft revision of Code of Practice CP114.

Regarding the increase in the levels of noise during the last few decades (machinery

and aircraft) it is stated that very little is known about how much noise is reduced as it travels through the atmosphere, and investigations have been made into noise propagated vertically downwards from an aircraft in flight and with noise propagated at an oblique angle over a built-up area. With a knowledge of the amount of noise generated at the source the reduction in the noise level with increasing distance can be estimated from these investigations; thus either the distance which, say, must separate a school from a runway can be calculated, or the protective measures, e.g. double windows, that will be necessary at a given distance can be decided.

The Scottish Laboratory report that the investigation of the moisture movement of natural rock aggregates for concrete has already shown that different rocks of the same nominal type can vary considerably in the extent to which they shrink on drying. Shrinkage of the aggregate has been found to increase that of the concrete made from it, sometimes sufficiently to lead to early deterioration of the concrete, especially in precast units, on exposure to the weather. The investigation is being pressed in view of its obvious importance.

The report is published by H.M.S.O., price 9*s*. 6*d*. net.

A New Development in Fireproof Doors. Messrs. Haywards Ltd. have recently patented a device for pairs of self-closing steel fireproof doors to ensure that the two leaves close in the right order, as they have to be rebated at the meeting edge. To hold the two leaves open at any desired position a braking device presses against the upper strap hinge of each leaf, a coupling box giving the necessary tension. The respective braking devices are connected together across the top of the door frame by two rods joined together by a fusible link designed to melt at 155° F. When the link melts, tension on the top hinges is released and the central helical hinges close the doors. Correct closing of the two leaves is effected by a selector gear consisting of a ½ in. bright mild steel rod loosely held in brackets and fitted with an arresting and a releasing arm. On the leaf that should close first a lifting bracket is so positioned that when the leaf is almost closed the bracket turns the rod and raises the arresting arm clear of the leaf that should close last.

The helical springs that close the doors are enclosed and contain an oil bath and do away with the need for springs or quadrant tracks and wheels. In the case of single leaf doors there is a similar helical hinge, braking device and fusible link. As the braking device needs to make only slight friction on the strap hinges the doors can easily be closed by hand.

Messrs. Haywards' address is Union Street, Borough, London, S.E.1.

Vermiculite Concrete Screeds. The Association of Vermiculite Exfoliators announce the result of tests carried out by the Building Research Station on the degree of resistance offered by vermiculite concrete screeds to concentrated loads. The experiments were aimed at establishing the

Haywards' self-closing fireproof doors

strength of a lightweight roof or floor screed judged by its ability to carry point-loads, rather than large distributed loads.

The tests were carried out on vermiculite screeds covered with a sand/cement topping and showed that resistance to loads depends to a great extent on the thickness of the topping rather than on the actual vermiculite concrete. A ¾ in. topping gave 50 per cent higher strength than a ⅜ in. topping, irrespective of the formula for the vermiculite concrete screed laid underneath. When a concentrated loading on 1 sq. in. was applied to 8 : 1 and 6 : 1 screeds topped with ¾ in. thickness of 4 : 1 sand/cement topping, a mean strength of 1,130 lb. was obtained. In a similar test a 5 : 1 vermiculite concrete screed with a ¾ in. thick topping gave a mean strength of 1,770 lb. on 1 sq. in.

The Association consider that these tests confirm their general recommendations, which are: (1) mix ratios for roof screeds, 8 : 1 or 6 : 1 (possibly 10 : 1 in light of the B.R.S. findings); (2) floor screeds, 6 : 1, 5 : 1, 4 : 1 according to the load to be carried; (3) the topping should be 4 : 1 sand/cement, as dry as possible and laid while the vermiculite concrete is still green, to avoid cracking or curling; (4) the topping should be ⅜ in. for roof screeds and at least ¾ in. for floor screeds.

Codes of Practice Recently Published

C.P. 114: 1957. **The Structural Use of Reinforced Concrete in Buildings.** This is a revised edition of the 1948 Code and deals with r.c. design and construction as applied to beams, slabs, columns, flat slab construction, and walls and bases in buildings. Floors, roofs and stairs were formerly the subject of separate sub-codes, but are now embraced by the new Code, which also incorporates some important changes and developments which should lead to increased economy and freedom in design. The recommendations concern materials and strength requirements; also permissible stresses in steel and concrete, which have been increased wherever it could be safely done.

The contents of the Code also include the design of mixes to a specified strength requirement; methods for assessing the bending moments and other stresses in the members; permissible loads on columns, and general formulae applicable to any type of steel. Recommendations are made on the practical aspects of concreting, formwork, and the bending and placing of reinforcement. An appendix gives guidance on the fire resistance of certain types of r.c. construction, based on the recommendations of the Joint Fire Research Organisation.

The Code is illustrated. Price 10*s*.

British Standards Recently Published

B.S. 416: 1957. **Cast-iron Spigot-and-socket Soil, Waste and Ventilating Pipes (sand-cast and spun) Fittings and Accessories.** This Standard has been revised mainly to incorporate requirements for spun pipes. Minor changes have been made to the dimensional table, the text has been revised, and all printed amendments to the 1944 edition have been embodied. The scope is still confined to pipework for use above ground, the grades being medium, heavy and extra heavy for manufacture by the sand-cast process, and a medium grade for the spinning process.

The Standard includes a range of 3½ in. and 4 in. diameter fittings specially intended for use with single stack plumbing installations, in order to reduce the number of joints to a minimum and to provide automatic positioning of the branch pipes to ensure satisfactory functioning of the system according to the principles laid down by the Building Research Station and the Ministry of Works. Price 7*s*. 6*d*.

The R.I.B.A. representatives on the drafting committee were Mr. O. C. F. Carey [*A*] and Mr. H. H. Clark [*F*].

B.S. 1162: 1957. **Mastic Asphalt for Roofing (Natural Rock Asphalt Aggregate).** Progress in the methods of manufacturing and testing mastic asphalt has been made since this Standard was first published in 1944. The revised edition (1957) takes account of this progress and brings the definitions used into line with those in revisions of other B.Ss. for asphalt products. A maximum hardness number is now given in addition to the previous minimum and separate analyses are specified for use with natural rock from Swiss sources and for rock from all other sources. There are four sections in the Standard: (1) mainly definitions, (2) required properties of the materials, (3) manufacture of blocks and re-melting on the site, and (4), sampling and testing. There are three appendices dealing with acid solubility, determination of the hardness number, and recommendations for the application of mastic asphalt based on C.P. 114: 201. Price 3*s*.

The R.I.B.A. representative on the drafting committee was Mr. A. J. Fagg [*A*].

A.B.S. Christmas Cards

Card No. 1, price 8*d*.

Card No. 4, price 1*s*.

Card No. 2, price 1*s*. 3*d*.

Card No. 3, price 9*d*.

THE FOUR Christmas cards illustrated above may now be ordered by post or bought direct from the offices of the Architects' Benevolent Society, 78 Wimpole Street, W.1.

Card No. 1, 'Father Christmas', is printed in red and gold on a white ground. Card No. 2, 'Madonna', is in white and gold on a blue ground. Card No. 3, 'Winter Landscape', is in black, white and blue. These three cards are from Messrs. Raphael Tuck & Sons Ltd.

Card No. 4, 'St. Vedast, Foster Lane, Cheapside', is reproduced from a drawing by Major A. Ivor Richards [*F*].

The cards have words of greeting printed on the third page, but purchasers may have their own names and addresses added at an additional cost of £1 10*s*. for the first hundred, and £1 for each additional, or part of, a hundred. The minimum number that may be ordered with additional lettering is fifty, and all orders must be received by 30 November at the latest.

Overseas purchasers should advance this date by the time that the parcel post from Great Britain normally takes to reach them. Those who prefer packets to be sent by air mail are required to pay the cost.

When ordering, please state the reference number of the cards and total number required of each, and include the money with the order. If names and addresses are to be added, these should be given in block letters or typewritten.

Specimen cards have been sent to Allied Societies, where they may be inspected and ordered. Please support the A.B.S. by ordering generously this year.

Notes and Notices

NOTICES

Architects' Christian Union. A meeting of the recently formed Architects' Christian Union will be held at the R.I.B.A. on Thursday 17 October.

The Rt. Rev. Hugh R. Gough, O.B.E., Bishop of Barking, will give an address.

The meeting will be open to members and friends and tickets will not be required.

Buffet refreshments will be served from 6.30 p.m. and the meeting is expected to conclude about 8.30 p.m.

R.I.B.A. Library Group. The first meeting of the new session of the R.I.B.A. Library Group will take place on Monday 21 October at 6 p.m., when Mr. H. V. Molesworth Roberts will give a talk on George Frederick Bodley, who died 50 years ago on that day.

Luncheon and Tea Facilities for Members. Members are reminded that there is a self-service dining room on the second floor of the R.I.B.A. building where luncheons are served between 12 noon and 2 p.m. on weekdays except Saturdays. The dining room is open to members and Students. There is a 'Club' licence and drinks can therefore be obtained with meals. Members may bring guests.

Morning coffee and afternoon teas have hitherto been served in the Members' Room on the first floor. Owing to the rebuilding programme the Members' Room has to be taken over for temporary office use and the service of coffee and teas will, during the period of rebuilding, be available on the second floor landing.

COMPETITIONS

Development of the Leith Fort Housing Area. Last day for submitting designs: 30 November 1957.

Full particulars were published in the JOURNAL for June, page 342.

Civic Centre for the Borough of Enfield. Last day for submitting designs: 18 November 1957.

Full particulars were published in the JOURNAL for May, page 287.

International Competitions. A note has been received from the International Union of Architects that the conditions of the following competitions have been approved by them:

Development of Berlin Centre. Last day for submitting designs: 1 February 1958.

Full particulars were published in the JOURNAL for May, page 287.

Quaid-e-Azam Mohammed Ali Jinnah Mausoleum at Karachi. Closing date: 31 October 1957.

Full particulars were published in the JOURNAL for July, page 387.

ALLIED SOCIETIES

Changes of Officers and Addresses

Berks Society of Architects. Chairman, J. T. Castle, A.M.T.P.I. [*A*].

Northamptonshire, Bedfordshire and Huntingdonshire Association of Architects, Northamptonshire Branch. Hon. Secretary, D. R. Howell [*A*], 45 Cupar Crescent, Corby, Northants.

Nottingham, Derby and Lincoln Society of Architects, North Lincolnshire Branch. Chairman, R. W. W. Brown [*A*].

East Africa Institute of Architects, Kenya Chapter. Chairman, G. S. Melland [*A*]. Hon. Secretary, J. R. Watson [*A*], Church House, P.O. Box 12021, Nairobi, Kenya.

Royal Victorian Institute of Architects. President, Raymond Berg, 55 Collins Place, Melbourne, C.1, Victoria, Australia.

Indian Institute of Architects. President, Walter S. George, A.R.C.A. [*F*].

GENERAL NOTES

Inquiry on Downing Street Houses. The membership of the committee of inquiry appointed by the Prime Minister to advise him on the reconstruction of Nos. 10, 11 and 12 Downing Street is as follows: Lord Crawford and Balcarres [*Hon. F*], Chairman; Lord Chandos, Lord Bridges, Sir Howard Robertson, Past President, R.I.B.A., and Sir Arthur Whitaker, President of the Institution of Civil Engineers.

R.I.B.A. Cricket Club

R.I.B.A. v. Club Cricket Conference, 28 *August* 1957. The match was played at Wimbledon and resulted in a draw.

The C.C.C. batted first and declared at 184 for 8. Although the R.I.B.A. tried hard to get the runs after tea, they were prevented from doing so by the accurate bowling of T. Burton (8 for 39) and their score was 165 for 9. The game was marked by some excellent batting by A. H. Brown (81) and G. Atkins (38) for the C.C.C. and by G. Fyson (59) and D. L. Robinson (28) for the R.I.B.A.

Correction. In the obituary notice of the late Alfred Eustace Habershon [*Retd. F*] in the August issue of the JOURNAL reference was made to the Capital and Counties Bank at Woolwich, which was designed by Mr. Habershon. The business of the Bank was absorbed by Lloyds Bank Limited and not by Barclays as was stated.

Obituaries

Herbert Arthur Cox [*Hon. A*], Chairman of The Builder Ltd., died on 17 December 1956, aged 81.

Mr. Cox was the third son of Edward Webster Cox, J.P., and great grandson of John Lewis Cox, first printer and subsequently proprietor of THE BUILDER, founded in 1842. He was educated at St. Paul's School and although he originally thought of taking up architecture and studied so, he later turned to accountancy and qualified as a chartered accountant. In 1911 he joined the board of THE BUILDER, becoming joint chairman in 1921 and sole chairman in 1933. After the centenary of the paper, he was made an Honorary Associate of the R.I.B.A. in 1943.

Following in the steps of his father and grandfather, Mr. Cox was Master of the Worshipful Company of Stationers and Newspapermakers in 1943–44, and he had devoted much energy to the affairs of the Stationers' School. He also founded THE BUILDER scholarship of the R.I.B.A.

He was a Fellow of the Society of Antiquaries and his particular interest was the history of old London. He had made many models of medieval London buildings and was the author of *Old London Illustrated*. He also brought up to date and enlarged some papers compiled by his father on the history of THE BUILDER and its proprietors and staff, which he published privately under the title *These Stones*.

A Fellow of the Institute of Chartered Accountants, he was practising until a few years ago as principal of the London firm of Woodman, Cox and Wilkins.

Edwyn Emrys Edmunds [*F*] died on 10 September 1956.

Mr. Edmunds was the son of the Rev. Edwyn Edmunds, Secretary of the Welsh Baptist Union of Wales and Monmouthshire for many years. He was educated locally at Dynevor and received his architectural training at London University and in the office of Mr. Arthur Keen [*F*]. He took up private practice in Swansea and Neath. During the First World War Mr. Edmunds was commissioned in the Royal Welch Fusiliers, serving in Egypt and Palestine. He was later appointed architect to the Llwchwr Urban Council.

His practice extended over a wide area of South Wales. His work in the Swansea area included Ilston House, the Baptist Chapels at Townhill and Pontardulais, and many business premises in Swansea, including 'Wildings' in The Kingsway. He had also designed the John Myles memorial at Ilston Valley.

During the last war Mr. Edmunds was in Cardiff as Chief Technical Adviser to the War Damage Commission for South Wales and Monmouthshire.

Professor William Emerson [*H.C.M., U.S.A.*], Dean Emeritus of the School of Architecture at the Massachusetts Institute of Technology, died in Cambridge, Mass., on 4 May 1957.

We are indebted to Mrs. Janet Pott [*A*], daughter of the late Henry Martineau Fletcher [*F*], for the following appreciation of Professor Emerson:

'After graduating at Harvard, he studied at the Beaux Arts at the end of the last century, and from that time originated not only his scholarly approach to architecture, but also his warm-hearted appreciation of the best aspects of French culture and of the French people and their language. During the First World War he was Director of the American Red Cross Bureau of Construction in Paris, and in 1925 he collaborated with his former fellow-student Georges Gromort in writing an excellent book on *Old Bridges of France*. This was followed in 1935 by *The Use of Brick in French Architecture* and Professor Emerson and his wife took great pleasure in collecting the materials for these books in provincial France. He was delighted when Frenchmen in conversation mistook him for a compatriot, and while he was sketching in a Normandy village, with his beret and ribbon of Chevalier of the Légion d'Honneur, he might well have been taken for a distinguished native of France.

'But Professor Emerson had equally close links with England, through his brother-in-law, Henry Martineau Fletcher. They shared an interest in architectural education and Professor Emerson was, with his old friend, Sir Ian MacAlister, the instigator of the Henry Martineau Fletcher Memorial Trust Fund, formed for buying special books for the R.I.B.A. Library.

'An even wider international outlook and a strong sense of public service, due, perhaps, to his Puritanical tradition—he was a great-nephew of Ralph Waldo Emerson—caused

Professor Emerson to work for, and become Chairman of, the Unitarian Service Committee and to become President of the American Association for the United Nations (corresponding to our United Nations Association). He gave himself to these activities after his retirement from the Massachusetts Institute of Technology, at an age when many people would have been content to leave younger men to carry on the practical work for the aims of these organisations.

'Although Professor Emerson had practised in New York before the First World War, among other things as a pioneer of model tenement building, he will be remembered chiefly as Dean of the School of Architecture at the Massachusetts Institute of Technology from 1919 to 1939.

'His loyalty to the Beaux Arts tradition did not prevent him from viewing with a broad-minded yet critical sympathy, the work of those of his students who broke away from that tradition. His untiring help and advice and the modesty with which they were given, will be remembered by a very large number of the students and architects who knew him—and not only by those in his own country.

'As Secretary of the Rotch Travelling Scholarship Committee, his international interests and knowledge were again of value to his profession, and as Vice-President of the Byzantine Institute, he showed a practical interest in the preservation of Santa Sophia.

'But these facts about the life and work of Professor Emerson can give little idea of the man himself—of the combination of modesty and humour, of courteous tact and fighting integrity, and of his international yet very American ideals.

'He will be remembered gratefully by all those who knew him, whether they met him on a committee or at his home, which was one of the most beautiful houses in Cambridge, Mass. —or indeed in the U.S.A.'

Herbert Lewis Honeyman, F.S.A. [*A*], died on 22 November 1956, aged 71.

Mr. Honeyman was a son of Dr. Honeyman of Honeyman, Keppie and Mackintosh, and trained in the office of John Burnet and Son, and the Glasgow School of Architecture. He went to Newcastle in 1913 and joined the firm of Graham and Hill, later becoming a partner and latterly carrying on the practice on his own account.

Mr. Honeyman, who was Institute Medallist (Essays) in 1911, was mainly concerned with ecclesiastical and domestic work. He was a keen antiquarian and had been joint and then sole secretary of the Newcastle Society of Antiquaries, also their librarian and editor of some of their Proceedings. He had also been a member of the Northumberland County History Committee and Secretary of the Ancient Monuments Committee, and he had played a prominent part in organising the Roman Wall Preservation Campaign in the late 1920's. In addition Mr. Honeyman was a member of the Washington Hall and Tanfield (Causey) Architectural Preservation Committees.

He was the author of a best-seller history of Northumberland and contributed to publications of the Scottish Ecclesiological Society and the Newcastle Society of Antiquaries and had written most of the histories and descriptions of buildings for two volumes of the Northumberland County History. He had finally undertaken the work of writing on churches and castles of the three northern counties.

Mr. Honeyman was also Secretary in the organisation of the Citizens' Service Society from 1919, and was one of the trustees of the Montagu Pit Disaster Fund.

Sydney Alexander Jackson [*L*] died on 9 November 1956, aged 80.

Mr. Jackson was the third son of Samuel Jackson and entered his father's office at Weymouth in 1890. He assisted architects at Worthing and Lancaster, remaining at the latter city until 1913, when he took over the practice of the late Mr. Jem Feacey at Dorchester. There he superintended the completion of East Fordington Church from plans prepared by Mr. Feacey. He was later appointed Surveyor for the Diocese of Salisbury, holding that position for over 28 years and only relinquishing it after an accidental fall.

Mr. Jackson designed and planned West Fordington Parsonage House, Dorchester; St. John's Parsonage House, Portland, after destruction by enemy bombing; the new Rectory at Portland; and the Chapel for the Community of Christian Contemplatives near Abbotsbury. He also carried out housing projects for Dorchester Borough Council and the Rural District Councils of Cerne, Wareham and Purbeck, and Sturminster Newton.

As Honorary Architect to the Mill Street Housing Society, Dorchester, he built small houses and flats, including the conversion of an old flour mill into flats. In addition to many other business, commercial and private buildings in Weymouth and Dorchester, Mr. Jackson was also responsible for the Frank Reynolds Memorial Hall, Weymouth; the Domestic Staff Block, Sisters' and Nurses' Quarters and ancillary buildings for Weymouth and District Hospital; and the adaptation of 'Massandra', a large private residence at Greenhill, for the Weymouth and Dorset County Royal Eye Infirmary.

Mr. Jackson was a Freemason for over 40 years.

Gilbert Henry Jenkins [*F*] died on 24 May 1957, aged 81.

Mr. Jenkins was educated at Queen's College, Taunton, and served his articles with Mr. John Watson of Torquay. Then followed a period of training in the District Surveyor's office at Stoke Newington, and of study as a part-time student at the A.A. and Royal Academy Schools.

He subsequently joined Mr. W. H. Romaine-Walker [*A*] and Mr. Francis Besant as a junior. In 1910 he became Mr. Romaine-Walker's partner, and together they undertook a great variety of works, including the restoration of and additions to Derby House; the reconstruction of the Liverpool Town Hall and of the Theatre Royal, Haymarket; the 1914–18 War Memorial at Eton College; the addition of the Turner and Duveen Wings to the Tate Gallery; Exbury, Hants; St. Wilfrid's Chapel, Preston; and flats at 68 Pall Mall (with Sir Edwin Lutyens). Extensive restorations and additions were made to country houses including Knowsley Hall, Lancs.; Holme Lacy, Hereford; Buckland, Berks; Great Fosters, Egham, and Orozvar Castle, Hungary.

Mr. Romaine-Walker's interest in gardens was also transmitted to Mr. Jenkins, and they were responsible for the gardens at Knowsley, Luton Hoo, Buckland, Great Fosters and Moreton Paddox.

In 1937 Mr. Jenkins was joined by his eldest son, Mr. G. L. M. Jenkins [*A*], until the outbreak of the Second World War. Mr. Jenkins' post-war work included the restoration of many churches, including St. Paul's, Shadwell, St. Mary's, Paddington Green, and St. Stephen's, Edinburgh. Mr. Ian F. Warwick [*A*] and Mr. W. E. Cousins [*A*] have now taken over the practice.

Mr. Jenkins was a Past President of the Institute of Landscape Architects and Landscape Advisor to Leicester Corporation Manifold Valley Scheme. He was a senior member of the Architectural Association and had served on the Council and was President from 1927–28. He was also a past member of the R.I.B.A. Council and had served on the Art Standing Committee, the London Building Acts Committee and the Board of Architectural Education, and on several occasions he had been appointed an arbitrator.

Mr. G. L. M. Jenkins writes:

'My father possessed an unrivalled knowledge of the London Building Act as the result of his early training in the District Surveyor's office at Stoke Newington. His practical knowledge of building materials was founded on stone, marble and granite—the work of his father and brother.

'With characteristic persistence and determination he overcame the serious disability of losing the sight of one eye at the age of twelve, training himself to be particularly observant of the best in architectural detail: his sketch books contain many interesting studies in pencil or pen and ink.

'His enjoyment of Georgian detail can be seen in many of his best works, and woe betide any assistant who did not scribe bolection moulds with bold true curves: his ingenuity in the handling of difficult site conditions was evident in his alterations of Liverpool Town Hall and later in the Theatre Royal, Haymarket. He expected a first-class standard of workmanship throughout his buildings and many clients have paid tribute to their pleasure in that results far exceeded expectation.'

Thomas Forbes MacLennan [*Retd. F*] died on 25 February 1957, aged 83.

Mr. J. R. McKay, R.S.A. [*F*], writes:

'Thomas Forbes MacLennan was a well-known and much respected Edinburgh architect. He was educated at George Watson's College, and served his apprenticeship with Messrs. McArthy and Watson of Edinburgh. He attended classes at the School of Applied Art in the Royal Institution at the Mound and also at the Heriot Watt College, where he gained distinctions in building construction and draughtsmanship and a silver medal in the former subject.

'He entered into partnership in 1905 with Mr. J. McIntyre Henry [*F*]. After Mr. Henry's death he continued on his own with the assistance of junior partners, including his daughter, Mrs. E. L. Westwater [*A*]. He retired in 1949.

'During his forty-four years of private practice he was responsible for much domestic, commercial, industrial and ecclesiastical work of sound architectural merit. His group of houses and shops at Longniddry for the Scottish Veterans, built about 1919, was a pioneer garden city embodying all the principles and features too often omitted in these economical days. He also designed the Midlothian County Building in Edinburgh.

'He was President of the Edinburgh Architectural Association from 1914–18 and a founder member of the Council of the Institution of Scottish Architects, later to become the Royal Incorporation of Architects in Scotland, of which he was also President. He was appointed Lord Dean of Guild of the City for four years from 1930. All building schemes had to obtain the approval of his Court before work could proceed.

'During the First World War he volunteered for service in the Royal Engineers (Signals). It was during this time that he worked unflaggingly on the Architects' War Committee. His work was particularly concerned with the Revised Modes of Measurement and Remeasurement of Executed Building Work. In

the Second World War he was a member of the Local Reconstruction Panel under the Emergency Services Organisation.'

Mr. MacLennan was Assistant Master of the Edinburgh Merchant Company from 1934–37 and was elected Moderator of the High Constables and Guard of Honour of Holyroodhouse in 1941. He was also a Justice of the Peace and for many years an active member of the Juvenile Organisation Committee of Edinburgh, serving on the Council of the J.O.C. for Scotland and was an Hon. Vice-President of North Merchiston Boys' Club. In his youth he had captained the 2nd Warrender water polo team and more recently was captain of Mortonhall Golf Club and a curler of ability.

Mr. McKay continues:

'He was of a quiet and unassuming disposition which, with a thorough knowledge of his profession, made him a confidant to many and a friend to all. His sound judgment and absolute integrity made him much in demand for arbitration in disputes. By his death the profession in Scotland has suffered a great loss and he will be missed by his numerous friends.'

Ivor Emlyn Meredith [*L*] died on 3 February 1957, aged 58.

Mr. Meredith received his technical education at the Bennett College, Birmingham. He became a Licentiate of the R.I.B.A. in 1945. In 1942 Mr. Meredith was appointed a part-time technical assessor to the War Damage Commission.

Mr. Meredith was at one time tutor in building construction, quantities, estimating and builders' organisation and management for the City of Birmingham Education Committee and also tutor for the Ellis School of Building.

David James Moir [*A*] died on 19 February 1957, aged 71.

Professor Percy E. Nobbs, R.C.A., F.R.A.I.C. [*F*] of Montreal, Canada, writes:

'Mr. D. J. Moir was the son of a builder in Perth, Scotland, where he went to school and took the building construction course at Sharpes Institution. After a year at the Glasgow School of Art, he became a draughtsman in the firm of J. W. and J. Baird, continuing to study in the evenings at the Glasgow Technical College. Then he moved to Canada where he found employment in Toronto, and in 1912 he sat for the A.R.I.B.A. in that city. It was there that we met, he as a candidate and I as oral examiner, representing the R.I.B.A. Board in London.

'I was very much struck with the thorough understanding that Mr. Moir showed in every subject and the clarity of his answers; and I asked him, any time he was in Montreal, to call on me. This he soon did and my firm, Nobbs and Hyde, engaged him and he soon became our head draughtsman, remaining with us and our successors until the day of his sudden death 45 years later.

'On occasion Mr. Moir was called upon to take a hand with the instruction in the Department of Architecture at McGill University, and what with the wars and the depressions incidental thereto, the firm's draughting-room staff varied up and down from fourteen to four throughout the 45 years during which he was with us. So there are today quite a number of architects in Montreal, who, apart from such university professors as they may have "sat under", cherish a great respect for D. J. M. as a teacher.

'Between 1912 and 1957 there were, in the nature of things, occasions in the affairs of the firm (e.g. on the death of my partner G. T. Hyde and on my retirement) when his experience and his name would have been very welcome in our councils and on our doorplate. But he was not interested. What he liked doing and did so well was to convert *approved* sketch plans into *consistent* sets of working drawings.'

John Lewis Redfern [*Retd. F*] died on 7 November 1956, aged 86.

Mr. Redfern was appointed the first Borough Engineer and Surveyor of Gillingham in 1904, shortly after the town had become incorporated. He came from Carlisle, where he had been Deputy City Surveyor. Mr. Redfern witnessed the growth of Gillingham into the largest borough in Kent outside the London area, and from his early days until his retirement in 1938 he strove to attain his planning ideal. He used to say 'I want Gillingham to be clean, airy and healthy—a town of which its people can be proud'. He was responsible for the planning of 90 acres of playing fields and open spaces and the planting of 6,000 trees; eight acres of riverside mud and marsh became the Strand; and he was largely responsible for the wide, open tree-lined streets, including the Watling Street Boulevard, and all the important public buildings built during his years of service were designed by him. He was also a pioneer of the use of colour in roads.

Mr. Redfern was a member of the Institution of Municipal Engineers.

Frederick Charles Robson [*L*] died on 25 March 1957, aged 70.

Mr. J. A. Bessant [*A*] has sent us the following account of Mr. Robson's career:

'Mr. Robson was articled to Mr. Keogh, architect, and on leaving him was with Mr. Beaumont, who was in general practice. In 1911 he went to Colorado Springs, U.S.A., where he assisted Mr. Thomas MacLaren [*A*], a well-known architect with a hospital practice. His principal work was the Cragmoor Sanatorium.

'He returned to England in 1919 and became assistant to Mr. W. G. Newton [*F*]. He subsequently became a partner of Messrs. W. G. Newton and Partners, where his most important work was on the speech house, science block, etc., at Marlborough College and work at Uppingham School.

'Later, on the death of Mr. Newton, he continued in practice and also assisted Sir Hubert Worthington [*F*] with his work on The Temple rebuilding.

'Mr. Robson was a fine designer and draughtsman in the traditional manner.'

William Charles Symes, F.R.I.C.S. [*F*] died on 1 August 1957, aged 76.

Mr. Symes was articled to the late George Hubbard, F.S.A. [*F*], some-time Vice-President R.I.B.A., in 1897, subsequently becoming junior assistant, managing assistant and finally a partner to Mr. Hubbard and his son the late Philip W. Hubbard [*F*] in 1917. Mr. George Hubbard retired in 1929, and after his son's death in 1953, Mr. Symes continued the practice of George Hubbard and Son on his own until 1955, when he was joined in partnership by Mr. G. Hamilton Gould [*F*] until February this year.

Mr. Kenneth M. B. Cross, M.A., President, R.I.B.A., writes:

'Symes was the sole remaining partner in the firm of George Hubbard and Son, with whom he had spent practically the whole of his working life. He became an assistant to the late George Hubbard, when Hubbard was appointed Surveyor to the Ironmongers' Company and his work was then largely concerned with the Company's property. He later became a partner in the firm.

'Symes' work was largely connected with the surveying aspects of an architect's practice and he was an authority on rights of light, party walls, valuations, and the London Building Act. During the period of his partnership the firm was engaged upon such buildings as almshouses for the Ironmongers' Company, a warehouse at Bankside, lecture rooms at Cambridge, various war memorials, a laboratory at Malvern College, Malvern Girls' School Hostel and many houses in the south of England.

'A great worker, of absolute integrity, and reliable in all that he undertook, his passing is a great loss to the architectural profession.'

Robin Audrey Thomas [*F*] died on 11 November 1956, aged 75.

Mr. Thomas was articled to Mr. Norman Atkins of Fareham, subsequently working under the Garrison Engineer, Netley, and later as Building Surveyor for Portsmouth City Council. He started private practice in Cosham, Portsmouth, in 1928. His son Mr. R. P. Thomas [*A*] and Mr. W. R. Hall [*L*], who were taken into partnership in 1954, are continuing the practice.

Mr. Thomas had a large and varied type of provincial practice. He was responsible for several pre-war cinemas including the Carlton at Cosham, the Savoy at Fareham, the Regal, Parkstone, the Plazas at Dorchester and Romsey, and the Empire, Havant; and the reconstruction of the Apollo Cinema, Southsea, and the Regal, Eastleigh. His post-war work included police and fire stations at Cosham, the T.A. Drill Hall at Hilsea and flats and maisonettes in Lake Road and Arundel Street, Portsmouth, for the City Council.

Besides being at one time President of the Hampshire and Isle of Wight Architectural Association and Chairman of their Eastern Chapter and representing the Association on the R.I.B.A. Council and the Allied Societies' Conference, he had also been a member of the R.I.B.A. Maintenance Scholarships Committee.

Mr. Thomas had many other interests besides architecture. He was a member of the Board of Governors, Portsmouth College of Art, Past President of the Portsmouth Camera Club, Past Master of a local Masonic Lodge and Past Commodore of the Southsea Rowing Club. He took a particular interest in Old Portsmouth, where he built himself a house overlooking the harbour and restored historic Buckingham House, which became his office.

Arthur Raymond Tipling [*A*] died on 25 November 1956, aged 53.

Mr. Tipling was educated at Queen Elizabeth Grammar School, Darlington, and was articled to Messrs. Clayton and Kelletts. In 1926 he became an assistant in the Worthing Borough Architect's Department. He subsequently held appointments in the Architect's Department of the Wolverhampton Borough Council and Staffordshire County Council, until he was appointed Chief Architect to Worthing Borough Council in 1945, where he remained until his death.

Mr. Tipling had been connected with most of the municipal buildings erected in Worthing since the war including the new library at Goring, various schools, housing schemes and sports grounds. In 1953 he was appointed Honorary Architect to Worthing Coronation Homelets Committee and he had also served on the Committee of the Brighton Chapter of the South Eastern Society of Architects.

Members' Column

This column is reserved for notices of changes of address, partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. Gerald M. Baxter [*A*] has been appointed Staff Architect to the Arndale Property Trust Limited of 120 Swan Arcade, Bradford, 1, Yorks.

Mr. D. A. Dobereiner [*A*] has been appointed Instructor in Architecture at the Department of Architecture, College of Fine and Applied Arts, University of Illinois, Urbana, Illinois, U.S.A., for the academic year beginning 1 September, 1957.

Dr. Denis Harper [*F*] has resigned from his appointment as Chief Architect to Corby Development Corporation in order to accept the post of Professor of Building at the University of Manchester College of Science and Technology. He leaves Corby at the end of October.

Mr. George Messervy, A.M.T.P.I. [*A*], for some time a co-opted member of the Housing Committee of the London County Council, has been appointed a Governor of the Hammersmith School of Building and Arts and Crafts, where he will be pleased to receive any constructive suggestions for the advancement of architectural education.

Mr. Hugh Owen [*A*] has been appointed Senior Planner in charge of Master Planning for the 129 municipalities in Alleghenny County, and his address is now c/o Pittsburgh Regional Planning Association, 200 Ross Street, Pittsburgh, 19, Pennsylvania, U.S.A.

Mr. J. M. Richards [*A*] has been appointed Hoffman Wood Professor of Architecture at Leeds University for the Session 1957–8 in succession to **Professor Basil Spence**, O.B.E., A.R.A., A.R.S.A., Hon. Secretary, R.I.B.A.

Mr. L. G. Toye [*A*] has joined the firm of Messrs. Master, Sathe and Kothari, G/65 Connaught Circus, New Delhi, India.

PRACTICES AND PARTNERSHIPS

Mr. P. M. Acres [*A*] has become a partner in the firm of Messrs. Woods and Acres, of 4631 Sherbrooke Street W., Montreal, 6, Quebec, Canada.

Mr. Clifford Culpin [*F*] and **Mr. William Ryder** [*A*] have, by mutual consent, dissolved their partnership carried on under the name of **Clifford Culpin and Partner**, except for the purpose of discharging outstanding obligations. Mr. Culpin will continue to practise under his own name at 39 Doughty Street, London, W.C.1, and Mr. Ryder will practise under his own name at 68 Jermyn Street, St. James's, London, S.W.1.

Mr. C. H. Elsom [*F*] has taken **Mr. William Pack** [*A*] and **Mr. Ernest Petter** [*A*] into partnership, and the firm will be known in future as **C. H. Elsom and Partners.**

Mr. James Ferguson [*L*] has retired from the firm of **Messrs. M. Purdon Smith and Partners**, of 31 Castle Street, Dumfries. The practice is being carried on by the remaining partner, **Mr. John Sutherland**, A.M.T.P.I. [*A*], under the same name and at the same address.

Mr. Stanley C. Hunt [*A*] has begun practice at 78 London Road, Chelmsford, Essex (Chelmsford 51635).

Mr. E. J. Nicholl [*A*] has commenced practice at 101 Banner Cross Road, Sheffield 11, where he will be pleased to receive trade catalogues, etc.

Mr. James Shearer, R.S.A. [*F*], having retired from the firm of **James Shearer and Annand**, the remaining partner, **Mr. George Annand** [*A*], will continue the practice at 11 Maygate, Dunfermline, under the same title. Mr. Shearer will continue to act as consultant to the firm.

Mr. H. Wylie [*A*] has ceased to be a partner in the firm of **Leslie Grahame-Thomson and Associates** and is now practising under his own name at 15 Moray Place, Edinburgh, 3.

CHANGES OF ADDRESS

Mr. Peter A. J. Dalton-Morris [*A*] has changed his address to 44 Sharon Street, Bloomfield, Connecticut, U.S.A.

Mr. D. R. Evans [*A*] has changed his address to 11 Almore Avenue, Downsview, Ontario, Canada.

Mrs. Ewa I. Fara [*A*] has changed her address to 1921 Westgate, Royal Oak, Michigan, U.S.A.

Mr. Colin Hatch [*A*] has changed his address to Flat 6, 3 Allunga Road, Berriedale, Hobart, Tasmania, Australia.

Lieut.-Colonel Gerald Haythornthwaite, T.D., A.M.T.P.I. [*A*], has changed his address to 22 Endcliffe Crescent, Sheffield 10 (Sheffield 65822).

Mr. Michael E. Holt [*A*] has changed his private address to 77 Ewhurst Road, West Green, Crawley, Sussex (Crawley 1911).

Mr. James F. McLean [*A*] has changed his address to Halfway Tree P.O., St. Andrews, Jamaica, British West Indies.

Mr. F. C. Menage [*A*] has changed his address to 10 Hawthornden Gardens, Belfast, N. Ireland, where he will be pleased to receive trade literature.

Mr. Ian M. Parsons [*A*] has changed his address to 31 Trinity Fields, Stone Road, Stafford.

Mr. D. G. I. Purves [*A*] has changed his address to Piperscroft, 226 Hanging Hill Lane, Hutton, Brentwood, Essex (Brentwood 2502).

Mr. N. Gunn Robinson [*A*] has changed his address to 2 Ludlow Drive, West Kirby, Cheshire.

Mr. Joseph Robotham [*A*] has changed his address to 7 Worcester Terrace, Clifton, Bristol, 8.

Mr. G. Gordon Scott [*L*] has changed his address to Reeves Green, Molehill Road, Chestfield, near Whitstable, Kent (Chestfield 295).

Mr. A. G. Shoosmith [*F*] has changed his address to Wades Cottage, Slindon, near Arundel, Sussex (Arundel 328).

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Associate (37), awaiting election as A.R.I.C.S. (Building), widely experienced in housing, school, industrial and hospital work, desires partnership or position leading thereto. Willing to work hard and take full responsibility for all types of work including quantities. Present remuneration: £1,200 per annum. Some small capital available. Box 71, c/o Secretary, R.I.B.A.

Associate (37) wishes to dispose of well-established private practice in east midlands area. Ten years' office lease at very low rental with all office furniture, equipment, stationery available. Small staff also available. Box 73, c/o Secretary, R.I.B.A.

Associate, Dip.Arch. (35), seeks partnership (or position leading to one in agreed period) in north midlands. Some capital available. Box 74, c/o Secretary, R.I.B.A.

Principal in private practice, under 40, shortly to sell practice in northern counties, wishes to purchase practice outright or obtain partnership with elderly principal about to retire within the next five years. Practice to be preferably in southern counties, well established and flourishing. Some capital becoming available if required. Box 75, c/o Secretary, R.I.B.A.

Associate, A.A.Dipl. (35), wishes to become partner in London practice. Broad experience in private practice. Some capital available. Box 76, c/o Secretary, R.I.B.A.

Associate (45), wide experience in private practice as principal, wishes to purchase partnership or practice in London or the south of England. Box 77, c/o Secretary, R.I.B.A.

WANTED AND FOR SALE

Wanted. Buckram bound volumes of the R.I.B.A. JOURNAL for 1945, 1946, 1948 and 1950. Box 68, c/o Secretary, R.I.B.A.

For sale. Complete R.I.B.A. JOURNALS for 1947/48/50/51/53/55/56/57, two of 1946, ten of 1949 and eleven each of 1952 and 1954. All in excellent condition. Price £4 4*s*. or nearest offer. Box 72, c/o Secretary, R.I.B.A.

ACCOMMODATION

Associate has room available in office in Old Brompton Road. Box 78, c/o Secretary, R.I.B.A.

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